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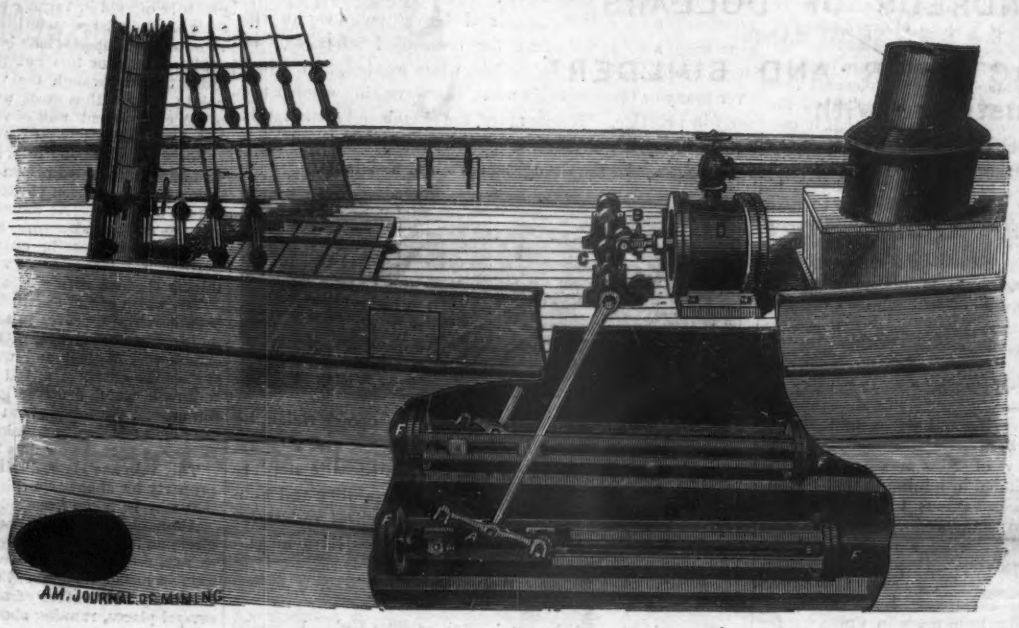
## A NEW METHOD OF PROPELLING VESSELS.

Few branches of science equal, and certainly none surpass in importance, that which relates to steam navigation. Economical and almost perfect as may seem to some our present system of paddle and screw, it is nothing to the possible economy of the future; for at present only a small portion of the power of steam is usually utilized in propulsion—the rest being wasted in friction, slip, lift-water, etc. Mr. FRED. R. PIKE claims to have discovered, by a series of experiments on a 100-ton boat, the primary laws that govern the propulsion of all animate or inanimate nature, viz: That propulsion is simply a matter of power and comparative resistances. That it is, and can only be, produced by repulsion. That what is called "slip" is simply imperfect repulsion, and reducible by making repulsion more perfect. Hence, that perfect propulsion can only be obtained, when power is so applied as to overcome the resistance in line of proposed motion, without overcoming the resistance pressed against in the opposite direction. To be able to accomplish this, the area of immersed cross-section of a boat, being resistance in line of motion, and being as 10 or 15 to 1, as compared with resistance of water at the paddles, which is point of repulsion—it is obviously necessary so to apply this power as to be able to overcome the resistance of 10 or 15 without overcoming resistance of 1. To effect this, Mr. PIKE makes use of a dynamic lever, and applies the power at the nearest mechanically possible point of the centre of its axis, which axis is the point of impact at which the power applied first acts, and represents the resistance to the boat, and by so doing practically multiplies the resistance of the water at propellers, for this then becomes the point farthest removed from the power, and by this means the resistance of water at propellers becomes virtually greater than the resistance of the boat's motion. Mr. PIKE states that in three different experiments made with the same boat, paddle, boiler, and the same consumption of steam, but with cranks of varying lengths, he found that using a crank of one-half radius of paddle gave 90 per cent. slip; crank of one-fifth radius, 50 per cent.; and finally using a crank of one-ninth the radius, gave only 10 per cent. slip in any given number of strokes. This evidence of facts in his own experiments he claims to be corroborated by a series of personal investigations made by the inventor on ferry-boats, ocean steamers, Sound steamers and Mississippi River boats, since in every case he found that the boats having greatest length of crank in proportion to radius of wheel, invariably had the greatest per cent. of slip, and *vice versa*. The accompanying cuts represents the new mode of propulsion, and in Fig. 1 A, B, is the dynamic lever, having its axis at C. The short arm, B, is connected by means of proper links to motion of the engine, D; the long arm of lever, A, is connected by means of proper links to piston-rod of piston propeller, E, (Fig. 3) the piston-rod passing through a proper stuffing-box into a cylinder, F, and terminating in double piston propeller, E; the opposite end of cylinder is open, and admits the water to face of piston, E; sufficient power being applied, and engine, D, making its stroke, the face of piston, E, impinges against the water, and one of two things must happen; either the piston, E, displaces the water in the cylinder, F, in which case the boat will not move, or the piston, not being able to displace the water, and sufficient power being applied to overcome the resistance at C, the boat goes ahead, the exact distance of the supposed stroke of propeller—any other result than one of these two being impossible. By observing the proper propulsion and making the right use of the dynamic lever, the latter effect can be produced. Fig. 2 represents the bow; and also the stern of a vessel, showing the openings or ports through which the water comes in contact with the propellers. Four propellers are made use of, two placed facing the bow for backing, and two facing the stern for going ahead; either pair can be connected or disconnected in less than a minute by means of proper appliances to connecting links, which terminate in the engineer's room; an odd pair of propellers may be worked simultaneously, which would turn the boat around on its own axis. The advantages claimed by the inventor are cheapness and simplicity of construction and durability; that the propellers themselves are perfectly protected from obstructions of ice, logs, weeds, and the action of waves; especial adaptability for canals, as it causes no waves or rollers to wash the banks, and for any boats of light draught, as used upon the Ohio and Mississippi River; that as the propellers are situated far below the water line, they cannot get out of water by working unevenly, or strain the machinery in even the roughest weather, which is an advantage over paddle and screws. The inventor claims that by this method he can propel a canal boat three miles per hour with two-horse power of steam—or an ocean vessel of 3,000 tons at a speed of 20 miles per hour, with less than 2,000 actual horse power of low pressure. The inventor having spent several thousand dollars in experiments, will dispose of a share of this invention for a nominal sum, to secure patents in different countries, and would like to put it into a stock company. The novelty of the invention consists in the combination and peculiar use of the dynamic lever, as combined with any form of propeller, so arranged as to impinge on the water on one side only; the form described being merely that thought best adapted for the purpose. It is caveated in this country and patented in England, covering the many possible variations of this method. Further particulars may be had by addressing FRED. R. PIKE, 56 Cedar street, New York city.




IMPROVED METHOD OF PROPELLING VESSELS.—Fig. 1.

FIG 2.

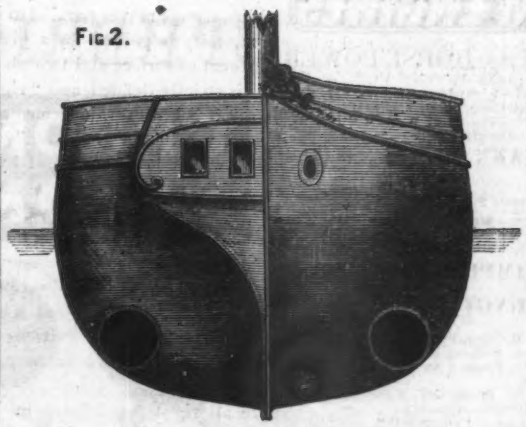
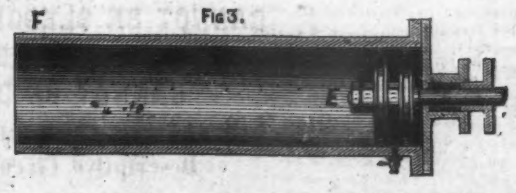


FIG 3.




## The Quincy Granite Quarries.

The first quarry was worked about forty years ago, from which, soon after, the first railroad in the United States was constructed to the Neponset River. Since that time twenty-two have been opened and made to contribute largely to the vast file of stone constantly required for building purposes. From the smallest of these quarries has been taken, according to local authority, over 800,000 square feet of granite, and from the largest over 8,000,000 feet. No exact measurement has ever been made of all the other quarries, but a careful estimate drawn from a close inspection of them all by an experienced quarryman, places the average number of square feet taken from each at about 2,500,000, making an aggregate of 61,300,000 square feet. Some stone cutters who at first laughed at these figures, made a partial survey for themselves, and then placed the number as high as 80,000,000. It will be seen at once by those whose curiosity would lead them to figures that stone enough has already been taken from Quincy to build a city two-thirds the size of Boston, while in ten years more, at the rate of the last five, there will be enough removed to build a granite pyramid the size of the largest Ghizeh. That these quarries will double and even treble their product nearly every year is but a reasonable conclusion, when we take into consideration the fact that the taste for foreign stone is largely on the decrease, while the desire for native granite is increasing in the same proportion. Within the last five years nearly every new lot in Mount Auburn Cemetery has been ornamented with granite. The same will hold true of many other cemeteries in this and other parts of the United States. Many fences of iron and ornaments of marble have been removed from cemeteries and parks, to give place to granite walls or curbing. A few years ago this stone as an ornament was comparatively unknown, and good artists never bestowed much of their time on granite work of any kind. But the beautiful polish of which the Quincy stone has been found to be susceptible has called to it the attention of many of our greatest artists, who have hitherto regarded it only as a useful material in rough buildings. Nearly all the stone now obtained is taken from the side of the mountains by digging and blasting. In some places large holes are drilled in the solid rock, apparently without much regularity, which when loaded and ignited loosen a large bed or throw out ponderous pieces, which are afterwards cut up into the required forms. If, however, it should happen that large pillars or monuments requiring a stone of more than ordinary length or size is required, then the block is marked out on the solid ledge, and holes about six inches apart drilled deep into the rock all along this line, after which stout wedges are simultaneously driven into these holes and the column breaks from its surroundings. After the blocks are thus loosened a stout derrick, usually worked by steam, is brought into requisition, and they are hoisted upon the railway cars, or placed on the heavy horse trucks to be taken to the yards. The same process of splitting the stone by drilling holes in a straight line and driving in wedges is used al-

most universally in cutting stone of all sizes. One large stone, cut from the cliff of the Railway Quarry Company in this way, now lies on the side of the mountain. It is thirty-six feet long, eight feet square, and was intended for a column in a Custom House. Nearly all the stone are cut, trimmed, and polished at the quarry, although there is a slight demand for the stone in the rough to be worked by the purchaser after reaching its destination. About five hundred men are now employed in getting out and trimming the stone, which is more than double the number employed three years ago.—*Boston Traveler.*

### Heaton's New Steel Process.

Heaton's steel process, that recently made such a sensation among British metallurgists, consists in pouring melted cast-iron upon nitrate of soda, in a suitable vessel. The nitrate is decomposed by the heat, giving off a copious volume of oxygen, which unites with the carbon in the iron, thus reducing the crude pig-iron to a sponge or porous mass of purified, malleable iron. The product is similar, in value, to the puddle ball, which is the product of the puddling process, and must be reheated and condensed to be got into merchantable shape, and is not then homogeneous. The Bessemer process decarburizes liquid crude iron by blowing air into it; but this is done so thoroughly by the Bessemer apparatus, that the product is liquid—liquid soft steel or hard wrought iron—which is cast into homogeneous masses of any size that do not require welding or piling. No steel process can compete in quality of product with the cast-steel process: however steel is produced, it must be finished in a liquid form in order to be sound. And it would appear that no cheaper material could be found for the decarburization of crude iron than atmospheric air. But while the Bessemer manufacture requires crude irons that are free from phosphorus and tolerably free from sulphur—in other words, good irons—it is claimed for the Heaton process that it can convert bad irons—that it can remove phosphorus. This claim is disputed, and farther experiments seem necessary to establish it. Just as crude iron in a semi-fluid state is "coming to nature," or changing to wrought iron, in the puddling process, it is known to part with some of its phosphorus. It is therefore possible that it does the same in the Heaton process. But in the Bessemer manufacture iron comes to nature in a liquid state, and if it is, at any stage of the process, free from phosphorus, it is not so at its close, in case the original iron contained this impurity.

### Survey in New Mexico.

Captain E W. Darling's surveying and astronomical party has finished the survey of the 37th parallel so far as it constitutes the northern boundary of New Mexico. A large amount of money has been expended in mining in that region, and those engaged in it have been anxious to know whether their mines were in New Mexico or Colorado. This line runs through a mountainous region, crossing a rattoon and the eastern slope of the Rocky Mountains. Many hardships were encountered in prosecuting the survey. The contract was made with the Commissioner of the General Land Office, last spring, the appropriations having been made in Congress, for the survey of the boundary. The western end of this survey establishes the northwest corner of New Mexico, the southwest corner of Colorado, the southeast corner of Utah, and the northeast corner of Arizona.

### Treatment of Horn.

White horn buttons may be made to imitate mother of pearl by being boiled in a saturated solution of sugar of lead, and then laid in a very dilute hydrochloric acid. Combs, to which the boiling process is not applicable, as it distorts the teeth, may be treated by being kept over night in a moderately concentrated cold solution of nitrate of lead, then laid for a quarter to half an hour in a bath containing three per cent. of nitric actd, and finally being rinsed in water.

### Iowa Coal and Peat.

Gov. Merrill says: "Coal, which is found in many parts of the State, is a source of vast wealth, which is being rapidly developed. In 1866, our State census shows there were 99,320 tons taken out, against 66,664 in 1864. Peat has also been discovered within a few years in many parts of the State, in quantities which promise an abundant supply of fuel."

### Treating Copper Ore.

In conducting the ordinary process of treating copper ores containing copper and sulphur, by calcining them with common salt, so as to obtain a soluble chloride of copper, Mr. T. Johnson, of Runcorn, England, employs a gas flame, instead of the reverberated flame from a coal fire, by which means he obtains a uniform heat with scarcely any attention.

### Another New Gunpowder.

A new kind of gunpowder has been invented by a M. Hahn. It consists of 367·5 parts of chlorate of potash, 168·3 of sulphuret of antimony, 18 parts of charcoal, and 46 parts of spermacoti. This gunpowder can be conveyed without any danger of an explosion, provided the chlorate be added only at the moment of using it, in the proportion of 46 parts of that substance to 29 of the othors.

### Steam on Canals.

The Lynchburg *Virginian*, November 28 says: "A regular steamer made her appearance here yesterday from Richmond—the first ever seen in these parts. She came up by canal and performed the voyage very easily."

## Practical Letters.

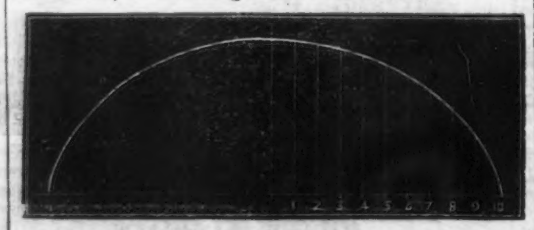
[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

### LESSONS ON MECHANICAL DRAWING—No. XXII.

BY T. P. PEMBERTON.

#### SOLIDS.

In speaking of surfaces, a table of polygons with the number and angles of their sides was given. It will be well for the student to commit to memory the names of certain solids designated Polyhedrons, and to enter the subjoined table in a book of mathematical and mechanical memoranda. And here I would say to all draughtsmen, either students or experts, that every mechanical and architectural draughtsman should keep his own memoranda of mathematical and mechanical data. In this book should be noted not only those rules which will a sist in calculations of the measurement and strength of materials, but also such facts as are the results of personal experience and close observation. In this mechanical diary, always handy for reference and always comprehensive, an amount of information will accumulate which frequently will prove to be highly useful. It is well to have books on geometry and mensuration, and bulky volumes on engineering and architecture for occasional reference, but these are not always to be had when wanted, and moreover many of them contain much that is neither needed nor used in practice. The memory, the sketch and memoranda books, the quick and correct eye, the ready hand and good instruments, are the draughtsman's best assistants.



If the student would be a thorough geometrician, he must study works on geometry, mensuration, and algebra. The excerpts from practical geometry in these lessons are to show more particularly the indispensability and consequent usefulness of the science in mechanical and architectural drawing. Having spoken of surfaces, lines, angles and polygons, I come next to

#### SOLIDS AND THEIR SECTIONS.

The primary solids are known as The Cube, Pyramid Cylinder, Cone, and Sphere. A cube is bounded by six square surfaces; its opposite sides are parallel. A pyramid is a solid bounded by any plane rectilinear figures, and by triangles having a common vertex, and for bases the sides of the rectilinear figure respectively. For example, a pyramid may have a square for the figure of its base and four isoceles triangles for its sides, making in all five plane surfaces. A cylinder is a solid, the surface of which is described by a straight line, which always moves parallel to its first position, and whose extremity is guided by a given curve. A cylinder with one curved surface and two plane circular surfaces for its ends is strictly defined as a "right cylinder with a circular base;" it is however, in elementary treatises on geometry generally called a "cylinder." A cone is a solid, the surface of which is descried out by a straight line, one end of which passes through a fixed point, and the other end through a given plane curve, called its base, or in other words it is a solid having a circle for its base, and tapering uniformly to a point called the vertex. A sphere is a solid, bounded by one curved surface, every part of which is equally distant from a point within, called the centre. In addition to these definitions of the five primary solids the following memoranda may be noted:

The angles of a cube are all right angles, and in its usual position all its surfaces are horizontal or perpendicular. Horizontal and vertical sections of the cube present square surfaces. The slant height of a pyramid is a line drawn from the vertex to the centre of one of the sides of the base. A vertical section of a pyramid presents a triangular surface. A horizontal section will give a figure with the same number of lines as are found on the base. The altitude or height of a pyramid or of a cone is a line drawn from a vertex perpendicular to the plane of the base. The frustrum of a solid is the part that remains after cutting off the top by a plane parallel to the base.

TABLE OF POLYHEDRONS.

| Name. | No. of sides | R—S+ | r—s+C— | S 3× |
|---|---|---|---|---|
| Tetrahedron.... | 4 | 0·6123 | ·2041 | 0·1178 |
| Hexahedron.... | 6 | ·8660 | ·5000 | 1.0000 |
| Octahedron..... | 8 | ·9071 | ·4082 | ·4714 |
| Dodecahedron.. | 12 | 1·4012 | 1·1135 | 7·6631 |
| Icosahedron... | 20 | ·9510 | ·7558 | 2·1817 |

S—Length of linear edge of a side.
R—Radius of circumscribed sphere.
r—Radius of inscribed sphere.
C—Cube contents of polyhedron.

## Mining Summary.

### GOLD AND SILVER.

### New York.

REPORTS ON THE DUTCHESS COUNTY GOLD MINES.

The following is the report of Dr. Pohle on the Dutchess County gold mines:

New York, October 13, 1868.

R. W. Milbank, Esq.—Sir:—At your request I visited professionally on June 30th inst., and at various times since, the recently discovered auriferous quartz veins in the township of Rhinebeck, Dutchess County, N. Y., for the purpose of ascertaining the extent and value of the ore existing there.

The property in question comprises an area of about 315 acres, the greater part of which has been under cultivation as farming-land for many years past. Its surface is diversified by hills, ridges, woodland, etc. It is situated on and divided by the Rhinebeck Road, three and a half miles easterly from the town of Rhinebeck, and about six miles from the station at Rhinecliff, on the Hudson River.

On the property there have been thus far found four distinct quartz lodes, running nearly parallel with each other and dividing the talco-argillaceous slates in the plane of their cleavage.

On one of these veins (Hudson), at a point elevated about 15 feet above the base of the undulation on which it is located, a lateral cut had already been made into the ridge or undulation through which the vein runs and many tons of ore thrown out; during the progress of this cutting, there were sent to me at various times, small samples for assay, all of which proved the presence of gold in varying proportions. Practical workings on comparatively large quantities, and assays from this and other veins on the property, have been made and will be hereafter stated.

Since that time this cut has been widened and extended, in order to cut through the vein and ascertain its width at this point; the cut thus made would represent an opening from base of ridge to second wall of vein, about 25 feet long, from apex 15 feet deep, and 12 feet on the course.

For six or eight feet from the surface, the quartz is of a cellular structure and stained brown with oxide of iron, the result of the decomposition of iron pyrites, which originally existed there and in part does now. As the cutting increases in depth, the quartz loses its cellular structure, becoming more compact; while the iron pyrites increase in quantity in the quartz, which near the bottom, is interlaminated with thin seams of argillaceous slate, thickly studded with cubical crystals of auriferous iron pyrites.

The width of the fissure filled by the vein to the extent it has been developed, proves to be by measurement, 14 feet 10 inches; its juncture, or selvage, with the adjoining walls of argillaceous slate is very distinct and well defined on both sides; near the surface the quartz is mixed with isolated lamellar fragments of wall-rock, which decrease gradually as the depth increases; the dip nearest the top is about 45 degrees east, but it curves with the depth and begins to take a more perpendicular course at the bottom, where it now dips 27 degrees.

This vein has been distinctly traced by its outcrops on this property for about two-thirds of a mile, and the amount of ore that may be taken from it is almost without limit.

About eight chains (surveyor's measurement) in a southeasterly direction from the opening just described, there is a ledge of quartz, cropping out in a copse of woods; the outcrop is about 200 feet in length, 12 feet in breadth and six or eight feet in hight. Northerly and southerly from this point it again shows itself in several places, running about parallel with the other and extending nearly across the property, which is over two-thirds of a mile long. The quartz is compact, and of a milky white color externally, but a new fracture shows it to be stained in streaks and spots with ferruginous and manganous oxides; a single blast was put in here and about half a ton of it thrown off. Assays made from a portion of this prove it to be auriferous.

About 12 chains in a southeasterly direction from the mine cut and four chains from last, in about the centre of a swamp there is a third vein, revealing itself by an outcrop about 35 feet long, 10 wide at its greatest breadth, and about three or four feet high, enclosed in talcose and chloritic slates. The quartz is somewhat cellular in structure and stained brown with oxide of iron; it has been traced northerly by other outcrops and quartz floats, on or near the line of its position, sufficient to prove it of great extent.

The mineral from this locality looks very promising, and sundry assays made from the pieces removed with a sledge hammer, prove it to contain gold.

These three veins run nearly parallel to each other, and have a general direction of N.; 25 degrees E.

About 25 and a half chains in a northwesterly direction from the "Mine cut," on the westerly boundary of the property, there is another auriferous quartz vein in talco-argillaceous slate. At a point (believed to be an offshoot from the vein proper) near the Rhinebeck road, there is a mass of about 20 or 25 tons of quartz and slate projecting from the ground; several blasts have here been made at different times and several tons of ore thrown off, portions of which have been submitted to practical workings at various times. About 400 feet in a southwesterly direction from this, (direction of compass S. 33 W.,) at a spot on the northerly end of a covered ridge, an excavation with pick and spade was made, and the vein found in talco-argillaceous slate; the ore looks very promising, and assays and practical workings prove it to be so.

These veins extend beyond this property in a northerly and southerly direction. Being guided by Col. Lane, who had made himself familiar with the country and its mineralogical indications in his explorations with Dr. Freligh, I had no difficulty in tracing them several miles by their outcrops and magnetic bearing.

On the westerly side of the Suckley wood lot (vide map) there is a deposit of ferruginous and calcareous quartzite, formed at a geological period subsequent to the formation of those heretofore named; its course is not very regular, but generally about N. 45 E., superficially it is friable and of an iron rust color, but a new fracture reveals a compactly granular structure, of ash gray color mottled with brown; its chemical constituents are:

Silica,
Carbonate of Iron,
Carbonate of Lime,
Oxide of Iron, etc.,

At irregular intervals it is seamed with thin veins of milky quartz, running in irregular directions. An assay made by me of a portion hammered off, indicates it to yield a trace of gold.

Beside the veins heretofore alluded to and the hills, hummocks, ridges and undulations pertaining to them, there are supposed to be five or six other veins (blind ledges) on the place, but as they cannot be clearly traced by a superficial survey—the rock having been found in place—and although their position is suspected by the indications in the range of their supposed course, the geologist is not warranted in stating them to exist in fact.

A geographical survey and map of the property have been

carefully made by Mr. Hazard Champlin, of Dutchess County, and the veins and other geological features referred to in this report as having been examined by me, have been indicated on this map. The other mines believed to exist, to which I have alluded, and which for want of time have not been sufficiently explored, will in a like manner be indicated on the map at the earliest practicable period.

The gold as it exists in the gangue, is mostly in the free state, but in an impalpably fine dark brown powder without metallic lustre; similar to that class of ore known in North Carolina as "Coffee Ore;" except in rare instances, where the gold was found in large enough particles to reveal its color and metallic lustre. I found it in that condition, *in place*, and other evidences of its existence in that state, have since been found in ore just blasted from the vein.

The small fragmentary portion of a heap of ore from the main vein, was submitted to panning at a neighboring brook, and a sizeable spangle of gold with metallic lustre obtained; small nuggets are also credibly reported to have been washed from a stream near the outcrop on the westerly boundary of the property, and one that I saw would probably weigh three pennyweights.

Being well satisfied of the presence of gold in place and of the great quantities of ore there, the next step taken was to determine, as near as possible, the practicability of its profitable extraction.

In order to arrive at anything like a satisfactory test of its value per ton, two barrels were filled with portions of the ore thrown out by previous blastings from the cut in the vein heretofore named. From the vein on the westerly side of the property, or rather from the offshoot of it near the fence, sundry small blasts were put in and two barrels filled with the ore thus obtained; these four barrels were sent to a patent crushing and pulverizing machine establishment (quite as much for the purpose of testing the machine as of grinding the ore), with strict instructions to the superintendent not to open the barrels until we were present at the time appointed. We arrived before appointment, found the barrels opened and some from each of the four on the floor; the sweepings, which had reasonably contained some of the fine gold, had been in part thrown away and quite a number of pounds had already been ground.

This unexpected proceeding threw a doubt over the anticipated results from these samples, and it was decided to abandon these as test experiments, but as the ores were here, it was concluded to work them practically at any rate and obtain test samples at some future time.

About a week after the above occurrence, another sample was obtained from the mine-opening in the following manner: blasts were put into that portion of the vein which had been left standing and a number of tons of the ore thrown off; three tight barrels were then placed at a convenient distance and these were filled, with an average of the workable or pay ore; not a piece was put into these barrels except by me or my direction. It would have been an easy matter to have filled them with ore yielding a high result, but as this was the point to guard against and I meant to be perfectly impartial, I may possibly have done the mine a trifling injustice; at any rate, the sample obtained was taken as fair as it was possible under the circumstances.

In speaking of an average sample, I do not wish to be understood as including the evidently barren and practically worthless quartz, always present in all gold veins, and which in this constitutes about one-eighth of the whole.

The sample thus taken, weighing 1,120 1-2 lbs., was sent to the metallurgical establishment of Messrs. Secor, Swan & Co., of this city, and there submitted under my personal supervision, to the various processes of pulverizing, washing, amalgamation, etc.; every precaution was taken to guard against the accidental introduction of gold, from the remnants of auriferous ores which had previously gone through the various apparatus; the ore cracker and Chilian mill, the sieves, amalgamator, amalgamating tubs, etc., were thoroughly cleaned and the mercury tested; in fact, the operations were conducted with the care and nicety of an analytical research.

When all the ore had been ground and seived, it was well and thoroughly mixed and four pounds of an average retained for fire assays as a check on the result.

The button of gold obtained by this practical working, weighed 338 1-2 grains; it is hereto attached, minus ten grains used for its assay; the gold obtained from the latter weighing 9.63 grains, is also separately attached.

The main button of gold was found to have a fineness of 963 thousandths, or about 23 1-4 carats; the balance being mainly silver. The following are the proportionate constituents of it:

| | | | |
|---|---|---|---|
| Gold | 325.97 grains, at | $20.672 | $14.030 |
| Silver | 12.53 grains, at | $ 1.2929 | .033 |
| Copper | trace | | |
| | 338.50 grains | | $14.03 × |

By calculations this would give the following rates and value per ton of 2000 pounds:

| | | | |
|---|---|---|---|
| Gold | 1 oz. 4 dwts. 7 91-100 grs., at | $20.672 | $25.14 |
| Silver | 22 " | $ 1.2929 | .06 |
| Total gold value | | | $25.20 |

The tailings resulting from the working, except a small portion of the lighter particles, which floated away with the current of water used in the operation of washing the amalgam, and which it was found impracticable to collect, were also assayed and found to contain gold in the proportion of $2.32 per ton.

The fire assays of the samples of pulverized ore retained for this purpose, yielded the following proportions to the ton of 2000 pounds.

| | | | |
|---|---|---|---|
| Gold | 1 oz. 7 dwts. 12 grains, at | $20.672 | $28.41 |
| Silver | 1 " 00 " | $ 1.2929 | .06 |
| | | | $28.47 |

showing the whole operation per ton, thus:

| | |
|---|---|
| Practical yield of metals | $25.20 |
| Tailings | 2.32 |
| Loss (floated off) | .96 |
| | $28.47 |

From the veins on the westerly side of the property, working samples were obtained and worked with similar care and circumspection.

Two barrels were filled with ore from the outcrop near the fence, (Freligh vein,) the weight of which was found to be 702 lbs. 700 lbs. of it was submitted to a practical working, which yielded a button of gold weighing 94 3-4 grains. It is hereto attached, less ten grains used for its assay; the fine gold of which is likewise attached, separately.

The button of gold as obtained, was found to have a fineness of 975 thousands, and the proportions of its constituents are:

| | | | |
|---|---|---|---|
| Gold | 92.88 grains, at | $20.672 | $3.978 |
| Silver | 2.37 grains, at | $ 1.2929 | .006 |
| Copper | trace | | .000 |
| | 94.75 | | $3.98 × |

or in the following proportions to the ton of 2000 lbs.:

| | | | |
|---|---|---|---|
| Gold | 10 dwts. 28.94 grains, at | $20.672 | $11.36 9 |
| Silver | 6.77 grains, at | $ 1.2929 | .01 7 |
| | | | $11.38 × |

The fire assays of this ore, from the two pound sample retained for this purpose, yielded the following rates per ton of 2000 lbs.:

| | | | |
|---|---|---|---|
| Gold | 13 dwts. 8 grains, at | $20.672 | $13.77 |
| Silver | 00 " 10 " at | $ 1.2929 | .02 |
| | | | $13.79 × |

Indicating the amount left in the tailings to be $2.41.

From the opening made in the vein proper, and about four hundred feet southerly from the spot where the preceding sample had been obtained, one barrel was filled, and the weight of ore found to be 318 1-2 lbs., 316 of which was "worked," and a button of gold weighing 56 1-2 grains was the result. It is likewise attached hereto, less 10 grains, used for assay; the fine gold of the latter is also attached separately.

The fineness of the button of gold was found to be 9722 ten thousandths—(9722-10,000) or about 23 1-2 carats, and its composition as follows:

| | | | |
|---|---|---|---|
| Gold | 55.09 grains, at | $20.672 | $2.372 |
| Silver | 1.41 " at | $ 1.2929 | .003 |
| Copper | trace | | .000 |
| | 56.50 | | $2.3 × |

or at the following rates in weight and value per ton of 2000 lbs.:

| | | | |
|---|---|---|---|
| Gold | 14 dwt. 12.66 grains, at | $20.672 | $15.01 |
| Silver | 00 8.90 " at | $ 1.2929 | .02 |
| | | | $15.03 |

The fire assay from this ore yielded gold at the rate of $17.48, thus indicating a loss in the tailings of $2.45 per ton.

It will be noted that in the preceding calculations all the values are made on the gold basis, viz., $20.672 per ounce Troy, for fine gold, and $1.2929 per ounce Troy for fine silver; as labor and the cost of machinery are estimated in currency, the current premium should be added to the gold value.

The samples of ore which were rejected as test samples on account of a doubt clouding them as heretofore mentioned, were sent to Messrs. Secor, Swan & Co., for their manipulation; these gentlemen returned the following results with the respective buttons of gold attached to their statement:

Two barrels of ore from the mine cut, 565 lbs., yielded a button weighing

7 dwts. 22 grains, rated per ton ..... $29,77

Two barrels, 508 lbs., from the surface ore of the Freligh outcrop, yielded a button weighing

2 dwts. 22 grains, rated per ton ..... $11,96

Feeling interested to know whether the cubical crystals of iron pyrites were auriferous, I separated several ounces from the thin seams of argillaceous slate from the mine cut and selected a sufficient quantity for assay; they yielded gold at the rate of 11 dwts. and 10 grains, and of value $11.79.

Another sample selected by Col. James C. Land, and more of a bronze color, yielded 8 dwts. 5 grains, valued per ton, $8.47.

From a barrel of ore weighing 250 lbs., taken from different veins by your agent, in order to determine the value of the property prior to your purchase of it, I made a fire assay from powdered ore furnished to me, which yielded $57.41. The 250 lbs. thus obtained was sent by your agent to the metallurgical works of Messrs. Secor, Swan & Co., and treated by them by the usual process of amalgamation, according to their report and accompanying button submitted to you. It yielded:

5 dwts. 11 grains, rated per ton ..... $45.60

Several working tests were made by other parties during 1867–8, and the statements of the results indicate very much larger yields than those obtained by me; as the parties making these selections simply desired to convince themselves of the presence of gold here, very naturally took good-looking ore; the results of all these practical workings were very flattering indeed, but as they do not represent averages, the exact figures are omitted, and the fact is merely mentioned as a matter of interest in connection with the foregoing, and as confirmatory of the existence of gold in this part of the State, and of my conclusions and statements.

With an average ore yielding $25.20 in gold, as it was obtained by me from the mine cut on your property, at a depth of less than 15 feet from the surface, and of $15.03 from the vein on the west side just from the surface, there is offered encouragement for the investment of capital in developing these mines.

Careful estimates have been made, from which it is safe to state, that with the requisite machinery on the ground, and the veins properly opened, the ore can be mined and worked on a moderate scale, for about seven dollars in currency per ton; upon a large scale of working, and the department of labor judiciously organized, a material reduction from that estimate may be relied upon.

From the report of James W. Taylor, Esq., in the "Mineral Resources of the United States," by Hon. J. Ross Brown, it is stated that "in Canada, Nova Scotia and the Southern States, it is profitable to reduce auriferous rock where the average yield is $8.00 (gold) per ton," and the celebrated Morro Velho mine in South America, for the year 1866, yielded a net profit exceeding £100,000, from ore averaging about half an ounce Troy per ton (of 2240 lbs.) The cost of extracting the gold in this instance was 25s. sterling, which included the general management.

The geological formations on this property are of the Lower Palæozoic age; the Potsdam periods of it are well represented by the metamorphic slates and the calciferous sandstone, but no fossils have thus far been found. The slates (argillaceous mainly) form a characteristic feature of the whole Appalachian range, and the presence of gold here supplies the link heretofore wanting in the chain of the Appalachian gold fields; for there can be no doubt that this is a part of the grand belt taking its rise on the St. Lawrence river and scattering its auriferous treasure for thirteen hundred miles along the southeastern border of North America, terminating in Alabama.

The discovery of gold in this part of the Appalachian gold fields is due to the scientific attainments and perseverance of E. G. Freligh, M.D. This gentleman being attracted by the geological complexities presented in this part of Dutchess County, was struck with the number of Ferruginous Quartz boulders and float pieces here found, these suggested a similarity to gold quartz generally; and after breaking and examining many pieces, he finally had the gratification of finding a microscopic spangle in one of them; with this clue he traversed the county in search for the ore in place, until he found it in its greatest development on the property herein described.

With all the evidences of mineral and material wealth presented to me in this examination of your property, I cannot do otherwise than congratulate you upon its acquisition. The exploitation of the precious metals here garnered must create a mining industry new in this State, and the people of it will cheerfully accord you the prosperity springing from its creation.

Very respectfully yours, J. G. Pohle, M. D.

The following is the

REPORT OF MR. P. M. RANDALL ON THE FRELIGH-MILBANK MINES:

95 Liberty street, New York, Dec. 3d, 1868.

I visited, Dec. 1st., in company with a party of scientific and practical quartz operators, the Freligh-Milbank mines.

These mines are situated on the Murch farm, in the township of Rhinebeck, Dutchess County, N. Y., between three and four miles easterly from the village of Rhinebeck, and about six miles from Rhinecliff Railroad Station, on the Hudson River. The region is mountainous, and in line with the Appalachian range to which it evidently belongs. These mines thus far developed consist of four nearly or quite parallel lodes. I traced them by their outcrops something over a mile in extent, and am informed by Dr. Edwin G. Freligh, their discoverer, Dr. J. G. Pohle, geologist and chemist, and Col. J. C. Lane, mining engineer and geologist, that they have traced them a distance of over forty miles, and that thus far they maintain these parallelism and distinctive features respectively.

On one of these veins, the Hudson, an opening sixteen feet long, wide as the vein, and twenty feet deep has been made. The strike is N. 25 deg. E. dip about 60 deg. E., thickness at right angles to dip fourteen feet ten inches. The vein-stone consists of cellular quartz, alternating with their layers of slate, rich in iron pyrites.

The quartz, unlike the "*boulder formation*" (so called on the Pacific Coast) is fine and delicate in its crystalline structure, much resembling that of the better portion of the Oneida, Eureka, Keystone and Spring Hill quartz veins of California. The cavities in the quartz of the Hudson lode are for the most part filled with oxide of iron, the result of the decomposition of the sulphides of iron. The selvage or "gauge" between the lode and "foot wall" is distinct and regular, and about an inch thick. The "wall rock" on both sides of the vein is a talco-argillaceous slate.

The surface of the earth, for at least a mile and a half along the descent from the mine towards the river, is of a reddish brown color, and is strewn with "float-rock" on fragmentary quartz, varying in size from the grain to a foot in diameter. The surveys show a point at the opening to be seven hundred feet above the river. Dr. O. P. Southwell of California and myself broke off about thirty pounds of the rock near the bottom of the opening, and three feet from the foot-wall. We gathered about a pound of the decomposed material underlying this rock, which was hastily washed in a prospecting horn by Mr. J. A. Sperry, a thorough practical miner.

The result was highly satisfactory, showing many particles of gold visible to the naked eye.

A small piece of rock taken from another place in the opening was pulverized and washed, and several minute particles of gold obtained. I was shown the certificates of Messrs. Secor, Swan & Co., and other competent and responsible metallurgists, who had worked several tons of the rock from this lode. The lowest yield by amalgamation was eleven 38-100 dollars per ton; the average, upwards of twenty dollars per ton.

Assays by the same parties, also by Dr. Pohle and by Dr. Torry of the U. S. Mint, present a still better showing.

From the data obtained I can but conclude as follows, viz:

1st. That the Hudson is a true fissure vein.

2d. That the rock is in large quantities and can be mined at a low cost.

3d. That it is a gold-bearing vein sufficiently rich in gold to be worked with profit.

4th. That the rock can be worked to advantage by amalgamation.

5. That the water on the premises is convenient and abundant for steam milling and amalgamation on a large scale.

6. That the grounds near the opening mentioned are favorable as to elevation and declivity for quartz mill purposes.

Such I understand and believe are the convictions of each one of the party who visited the mines with me.

Dr. Southwell, a man of sound judgment, scholarly attainments and great practical experience in all the departments of mining and treatment of ores, authorizes me to say that he fully indorses the conclusions to which I have come.

As to the other veins mentioned, parallel with the Hudson lode, I will simply remark that their heavy outcrops indicate large lodes, and that wherever they have been broken, the rock looks well and, as I am informed by Dr. Pohle, contains gold.

The discovery of these mines is due to geological science.

The facts, substantially are, that in 1859 Dr. E. G. Freligh, the younger, then a medical student, and lover of geological science, much questioned the theory of the day as to the non-existence of gold in this vicinity.

He seized upon these facts:

1st. That the geological formation was similar to that of the Appalachian range north and south of the region in question.

2d. That the color of the soil indicated mineral deposits.

3d. That the "float-rock" or fragmentary quartz strewn over the grounds was significant of a "mother vein" in the vicinity.

Possessed of these data he vigorously pushed his explorations until rewarded by the discovery of the vein, or, rather, system of gold bearing veins above described.

Saying nothing of the honor due to Dr. Freligh, the discovery at least is a proud triumph of science, and one promising great wealth to the owners of the mines, and incalculable benefits to the country.

P. M. Randall.

The special correspondent of the N. Y. *Tribune*, writing from Rhinebeck, contributes the following additional information. He says: "The object of this letter is to lay before the readers of the *Tribune* some evidences and analogies which go to establish the existence of gold in large quantities, and in such a state as to make the mining of it profitable, in Duchess County in this State. On Monday afternoon a party of gentlemen left New York on the steamer James W. Baldwin for the professed purpose of making a thorough examination of the quartz veins which appear in various localities in this township, and which, it has lately been rumored, contain gold. The gentlemen composing the party went at the invitation of Dr. Martin Freligh, sr., of New York. Among them were seven experts, viz: Dr. O. P. Southwell, geologist, of California; Mr. P. M. Randall of New York; Mr. J. A. Sperry of Brooklyn; Mr. Edward E. Walker of Montana; Mr. Stafford D. Gay of New York; Colonel James C. Lane, and Professor J. G. Pohle, geologist and analytical chemist of New York. The five gentlemen first named, it was stated to your correspondent, had no interest whatever in the new gold fields about to be examined, had never been on the ground before, but had been invited, as gentlemen of many years' practical experience in gold mining, to give their opinion of the quartz veins and of the prospects of working them successfully. The other individuals composing the expedition were Dr. Martin Freligh, and Dr. Edwin G. Freligh, Mr. R. W. Milbank of New York, and four gentlemen connected with the New York press. It was stated that Dr. Edwin G. Freligh had long been under the impression that the quartz rock of Duchess County contained gold. He judged so, first, from its resemblance to the gold bearing quartz of California, and second, from theoretical considerations. A very common mode of deposit for gold is a mechanical mixture with quartz rock. The pure gold thus deposited is found in company with various other metals, most commonly with silver, and the sulphurets of iron and copper. The quartz occurs in veins of various thickness, from thirty feet down to three inches or less. These veins are commonly several in number, and have the same general directions. There are also cross veins, which are not usually continuous for any great length. The gold found in the beds of streams, mixed with the sand, is

that which in the course of long ages have been set free by the disintregation of the rocks, and washed down by the water. These veins are frequently worked to the depth of a thousand or two thousand feet. The above will answer for a general description of the gold regions of Nova Scotia, North Carolina, California, and Australia. The region visited by your correspondent yesterday contains, apparently, four parallel veins of quartz, having the general direction N N E. and S S W. The veins are not visible at the surface, except in places at some distance apart from each other. At such places they crop out, and form what is technically called 'chimneys.' On the Murch farm, six miles east from Rhinebeck Station, there are several of these outcroppings, in all several hundred feet in length, and indicating four parallel veins. From one of these outcroppings the surface rock has been removed, the quartz removed to a depth of some 12 to 15 feet, and the width of the vein ascertained to be 14 feet 10 inches. Of course it cannot be told whether the vein will grow wider or narrower until it is traced to greater depths below the surface. The juncture of the vein with the adjoining walls of argillacious slate, or the 'selvage' as it is called, is distinct and well defined on both sides. The dip at the bottom of the excavation is 27 degrees from the perpendicular. No apprehensions of the veins giving out were expressed by the gentlemen who were of the party yesterday; but, on the contrary, it was predicted that the veins would grow richer as they were worked deeper. There being a series of mountain chains extending from the mouth of the St. Lawrence to the Gulf of Mexico, and bearing the name of the Appalachian range, and gold having been found in Nova Scotia, New Hampshire, Virginia, North Carolina, and Georgia, in the quartz veins, there seemed to be some warrant for the conjecture that the quartz veins of Duchess might also contain gold. Duchess County is situated between the Catskill Mountains, which loom up just over the river, and the Taconic Mountains, which form its eastern border, and is therefore similarly situated, in respect to the Appalachian range, with the other Atlantic coast gold regions already mentioned. So much for general resemblances and analogies. The history of the actual discoveries for the precious metals, as given to your correspondent by Professor Pohle and the Drs. Freligh, will now be briefly sketched. Dr. E. G. Freligh says that, after repeated examinations with the microscope, he found the first specimens of free gold in some float quartz in the year 1860 or 1861. About 1864 he began to take specimens to his office and to make assays. Some of these specimens were seen by returned Californians, who insisted that the rock was from California. Dr. Freligh did not attempt to publish his discoveries, from a desire not to be laughed at, nor did he wish the credit of having made the discovery by accident. He traced the principal vein for a distance of 15 miles to the northward, and southward over the river, to a distance of 25 miles from the spot visited yesterday. He had specimens of all the veins subjected to analysis, with results varying from $8 to over $100 of gold to the ton. In June, Messrs. Secor, Swan & Co. made an assay of 250 lbs. which yielded at the rate of $45 64 per ton. In July the same firm made an assay of 565 lbs., which yielded $29 77, and afterward of 508 lbs., yielding $11 96. Professor Pohle has made a great number of tests, both by scientific methods and the practical modes of working. He has, he says, endeavored to make an average selection of the quartz, rejecting both the extraordinary rich pieces, and the very poorest specimens—the latter making up, he says, only about one-eighth of the whole. By the practical working, by crushing and amalgamation, the yield was about $25 15 per ton. By the assays it was upward of $28. While at the vein Dr. Southwell and Colonel Randall split off a fragment of rock from the bottom of the excavation, and from beneath this removed the decomposed sulphurets, and placed them in a 'horn,' which had been brought along by one of the California gentlemen. This 'horn' was a concave vessel, made of a piece of the horn of an ox, and is the article carried by miners when they are prospecting. Mr. Sperry then 'panned' the contents of this vessel, and finally succeeded in making visible a few particles of gold, which by a peculiar motion were collected in one end of the dish. The mining gentlemen present appeared to be of the unanimous opinion that this was an unusually favorable result. When it is considered that one ounce of gold to a ton of rock is a very profitable yield, the quantity to be derived from two or three pounds, by a coarse process, becomes almost imperceptible. The expense of reducing a ton of quartz and extracting the gold varies, of course, with the situation of the mine, the cost of labor and fuel, economy of management, and other circumstances. It was stated by the experts that rock yielding from $8 to $10 per ton can be profitably worked in California. The same statement, substantially, is made in the last official report on the Mineral Wealth of the United States. Quartz rock in Duchess County ought, at the outside, not to cost more than $5 in greenbacks for mining, crushing, and amalgamation. The margin for profit on rock yielding $25 to $30 in gold per ton is thus seen to be immense. The question is, is there a large deposit of such quartz in Duchess County? The answer must be a little uncertain. No shafts have yet been sunk to ascertain the depth and width of the veins. It may be *probable* that the veins grow wider, or continue of their present richness, or even grow richer; but it is not *certain*. The public will no doubt be glad to see the facts ascertained as to the richness and extent of the deposits. A report of a geological survey and of analyses, hitherto made by Prof. Pohle, is published, and may be had of Mr. R. W. Milbank, No. 82 Front street. It was the unanimous opinion of the Californians that a shaft ought to be sunk down 300 feet without delay, and a mill with 20 stamps put up immediately. They thought the New Yorkers rather slow. It was stated that Dr. Freligh, who originally bought the Murch farm from Mr. Murch, had sold out his interest to the Messrs. Milbank. The machinery needed, in addition to the hoisting apparatus, etc., is a stamping mill for pulverizing the quartz. The cost of this need not be more than $30,000. Since the above was written your correspondent has received from Mr. Milbank the following important letter from Prof. Torry of the United States Assay Office in this city. It will be seen that whereas, from the tests of Prof. Pohle and Dr. Freligh, the average yield was estimated at from $25 to $30 per ton, Prof. Torry, from quartz excavated probably at a somewhat greater depth, obtains an average of $118 50! Here follows Prof. Torry's letter:

UNITED STATES ASSAY OFFICE,
NEW YORK, Dec. 2, 1868.

R. W. MILBANK, *Esq.—Dear Sir:* I have made a number of careful assays of ore, from the great quartz lode on your property in Rhinebeck township, which I shall report on in full very shortly. The ore was obtained and packed in a barrel under my supervision, and sent at once to my address in New York. Every precaution was used to get a fair average sample of the lode. Several assays were made, and in none was the proportion of gold less than $1,000 per ton of 2,000 pounds, and the average was $118 49 per ton. Yours, respectfully,

JOHN TORREY.

## Colorado.

The *Register* (Central City) gives the following description of Silver Gulch, and progress of work therein:—"Slaughter-house Gulch, or Silver Gulch, as we shall hereafter call it, is at present the great centre of interest and excitement in this county, and so we have made a pilgrimage to it. One tunnel, the Gilpin County, has been run in on the lode 120 feet. The Mahaska Tunnel is in between 60 and 70 feet, and another somewhat less, and are all close together, doubtless running into each other and finally forming a single vein, to which the others unite as spurs or feeders. The biggest crevice, best walls and largest body of ore belong to the Gilpin Tunnel. The adjacent rocks are of a coarse crystalline character, much shattered, and consequently the veins are not as concentrated and well defined as they will be at a greater depth. The richest portion of the ore is sulphuret of silver, highly decomposed, and as it comes from the mine is largely mixed with decomposed micaceous granite, yet it yields about $400 per ton. The more solid portion of the ore is galena and zinc blende, much of the latter being amber-colored, and all containing brittle silver and other varieties of the minerals of that metal. The galena vein probably ranges from four to six inches in thickness, and looks extremely well. While the class of ore first named works finely raw in pans, the latter requires smelting, and cannot be worked well in any other manner. The work is all done by driving drifts from the ends of the lodes as they crop out in Silver Gulch. They are dry and pleasant to work in. It is the opinion of people engaged in mining at Georgetown or elsewhere, that this mine is worth as much as any silver mine at Georgetown. The vein at present does not carry as much ore, and the ore may not be quite as rich, but it is vastly more approachable with a good wagon-road and easy grade to it, so that hauling will cost very little, and the means of reduction can be built on the spot."....The same paper also gives the following details of the German Mountain difficulty:—"German Mountain was the scene of a little excitement yesterday, caused by a collision between the owners of the Vasa and the U. P. R. Lodes. It appears that the Vasa is a strong fissure vein, having innumerable dips, spurs and angles, branching out to the north and south, much the same as the tributaries of other veins of like character. It was discovered in 1862, by one Teers, then in the employ of Messrs. Kip & Buell, who in process of time became possessed by pre-emption and purchase of numbers 1 and 2 west. In July last, or in that vicinity, Messrs. P. H. Dunnegan and James Ewers excavated a hole on number 2 west of the Vasa, claimed it as a new discovery and christened it U. P. R. Until quite recently the discovery of the Vasa has been held by the widow of Mr. Teers, from whom E. K. Baxter, Esq., purchased it, together with numbers 1 and 2 east. The discovery had, at the time of coming into Mr. Baxter's possession, a shaft about 40 feet deep, which was timbered down about 30 feet, the bottom showing a well-defined crevice. Mr. Baxter has run levels on the crevice of this lode directly into the shafts of the parties claiming the U. P. R., clearly establishing his declaration that there was but one vein, and that the Vasa. The U. P. R. parties began work a short distance east of the discovery, and in sinking defined the crevice of the Vasa, and extended their drifts into the discovery claim on that lode. Nothing can be clearer than that they have committed an egregious error in supposing their discovery to be a distinct and separate vein, as shown by the above facts. A large number of men were stationed at the several shafts along the Vasa Lode, representing both contestants for the property, and both equally strong in their opinions as to the right of the case. Yesterday morning the so-called jumpers were ejected from Mr. Baxter's mine by the Sheriff, and the rightful owner put in possession. Counsel has been retained by both parties, and the case will be adjudicated before the court now in session."....Our cotemporary, speaking of the Consolidated Gregory Mine and its management, says:—"This mine, though regarded by every Coloradian as one of the best in the Rocky Mountains, has long been a 'hissing and a by-word,' simply because the attempts at working the ores have been failures ever since it became the Consolidated Gregory. Hundreds of thousands of dollars have been squandered on smelting works, which failed because improperly constructed and managed, and not for lack of gold and silver in the ore. While the operations of the company were ostensibly in the hands of Mr. Hayes, the failure was no fault of his, for he operated under the direction of his company, and in accordance with their instructions. Fortunately, the whole policy of the company has been changed. They have now completed and in good running order a fifty-stamp mill, each stamp of which falls about 35 times per minute. The engine is one of a hundred horse-power. The boilers are hung in the furnace so as to let the heat pass all around them. The engine is placed on a solid stone foundation so firmly laid that there is not the least perceptible jarring. It is a double engine, so that it is never off the centre, but always starts as soon as the steam is turned on. It runs as smoothly as the one in the United States Mint at Philadelphia. Rock-breaking machines are to be put in, as also Bertola pans and two of Blatchley's. The mill is nicely arranged, and is kept running constantly. With all its capacity it cannot crush the ore now being produced by the mine. Its shafts are as good as the best in Colorado, and its ladder-ways safe, dry and easy of ascent. For several years the work done in the mine has been that of opening. At the bottom new drifts have been started, and both shafts and drifts show no decrease in the quantity. Drifts have been run at intervals of about 65 feet each way from the main shaft in every instance, showing a continuous vein of ore of highly cuprous character, and which in most countries would pay in copper alone, and which is rich in gold and silver. The vein in many places reaches five feet in width. At the very lowest estimate there is ore enough in sight to run the fifty stamp-mill three years without descending below the second level from the bottom. The vein is wide, the walls are solid and safe, and the timbering perfect, all done under the management of Mr. Rule. If there is a mine in Colorado that ought to pay a dividend, it certainly is the Consolidated Gregory."....The following is from the same paper:—"Mr. James Eagan, for the Baltimore Mining Company, is developing the Choctaw at Alvarado, Tallahassee at Georgetown, and Illinois at Kinneyville—all silver mines. The Choctaw has a shaft fifty feet deep, and shows a crevice four feet wide, streaked with sulphuretic ores, and decompositions, known by frequent tests to be rich. The Illinois is only ten feet deep, but even this has uncovered a vein of unusual strength and promise. It is situated near the celebrated Young America, and possesses similar characteristics. Mr. Egan has let a contract for sinking the discovery shaft twenty-five feet further. This will undoubtedly define the value of the vein, and give the owners a solid basis for more extended operations."... From the Colorado *Herald* we take the following in relation to the Smith & Parmelee Gold Company.—"This Company has produced in about three years, since Mr. Belden has been superintendent, seventeen thousand two hundred and thirty ounces, or fourteen hundred and thirty-six pounds of gold, worth, as it has been sold from time to time, just about $400,000. This has been done with a twenty-five stamp mill, and a twenty-five horse power, ten-inch cylinder engine. The mine has a large amount of water, and up to this time this little engine has done all the work of raising the ore, running the mill, and working a six-inch pump, now working to the depth of about five hundred feet. The old mill was one of the first built in the country, before much was known about building mills, and was a poor affair at best, but for the past few years has been condemned by the superintendent and every other one who has seen it. And yet, in expectation that some improved method of extracting gold would be discovered, the company have from time to time deferred building or improving, and the old mill and the incompetent machinery has been worked on, because it was better than none, and the above has been the result. We, and every one who has examined the premises, the means used, and the results produced, confess that it was wonderful. The directors of the company, in New York, have made a move in the right direction, and the old stamp mill has been taken down, and a new improved twenty-five stamp mill put up in its place, which will be completed and running in two or three weeks. They are also putting in a large engine, adequate to the work, about eighty horse power, sixteen inch cylinder, and thirty-two inch stroke." The same paper reports upon the silver works located on North Clear Creek, and run by Mr. Robert Teats. It says:—"The capacity of these works has heretofore been two tons per day; hereafter it will be from five to six tons per day. The mode of treating the ore is as follows: The ore is crushed in a jaw-crusher, run through a ball pulverizer, from which it passes through a machine, similar to a bolting apparatus in a flouring mill, into the California cylinders, of which there are two in the mill. The amalgamating is done in barrels. In addition to these a Blatchly pan (invented by a citizen of Central) has been used for a short time, which treats raw ores and saves 70 or 80 per cent., if the ore is free from galena. From the ore treated in the cylinders from 80 to 90 per cent. is saved. These works have been running for the past few weeks on ore obtained from the Coly lode, in Perley gulch (called Slaughter House gulch) with satisfactory results. Up to last Saturday the actual amount of silver produced was 10,707 ounces, worth in coin about one dollar per ounce. In addition to this, the mine has produced a considerable quantity of ore more than could be treated by the mill. There are now twenty tons of ore in the mill, besides a handsome lot of amalgam, retort and bullion, produced during the week. The ore run from the Coly thus far will average $200 per ton—some tons have run as high as 700 ounces. When it is remembered that this lode has paid so handsomely from the grass roots, that several such works as Mr. Teats now running could be supplied from it, and that there are a number of other lodes in that same locality which are known to be equally as good, it is not wonderful that some of our people should be a little excited about silver. Prof. Hill has been buying ore from this locality, paying a good price. He bought $1,900 worth from one man, at the rate of over $100 per ton. Mr. Teats is also working the Mohawk, which is owned by him, and is located in the vicinity of the Coly. Recently he has rented the Gilpin Co. tunnel, which makes three mines he is working, and is consequently accumulating ore rapidly. He will be able to supply his mill constantly, and can turn out over four thousand ounces per week, when the amalgamating capacity is increased, as it will be in a few days. The Blatchley pan is an important item in these silver works. It works like a charm; treats ores raw, and saves 70 per cent. of the silver. It is cheap, and simple, and treats two tons of ore per day."....We take the following items from the Georgetown, Colorado, *Miner*: "Stewart is erecting two reverberatory roasting furnaces at his works. This will increase his amalgamation capacity to five tons per day....At the Terrible Shaft House the other day we saw a beautiful piece of ore, weighing 268 pounds, taken from the slope. It measures 11 1-2 inches in width, and is solid mineral....The road to the Burleigh tunnel site and Brownville, is rapidly approaching completion, and when finished will be a great improvement over the old road on the south side of the creek....Schirmer & Bruckner have fired up their smelting furnace. They have made but one shipment...Huepeden, Wolters & Co., have taken out and shipped since our last report, 2106.95 ounces of silver bullion coin, value $2,265 68. A steam engine and boiler are being put in place, to furnish power during the winter months...Messrs. Erskine, Potter & Leonard, are working a new discovery, just below the Mendota, on Sherman Mountain. It is called the Steel lode, and at a depth of 20 feet carries from two to four inches of very fine mineral....Mr. Watson is putting in a Hepburn & Peterson and three Bartola pans, in the Brown company's mill, for working their second class ores by raw amalgamation. This is the first move in this direction here, and we hope to see it have a beneficial influence, in inducing others to go into the same enterprise.....The work of setting up the new roasting cylinder at the works of Huepeden, Wolters & Co., is progressing rapidly and in a short time will be ready for use. This will increase their capacity to about eight tons per day....We were at the Mendota lode on Friday last, and found that active operations had been commenced. A contract has been let to drive the adit on the vein one hundred feet, which when completed will make it about 130 feet in length. Lumber is being got on the ground with which to erect a boarding and ore house, and a blacksmith's shop. The vein is yielding a large amount of ore, there being now full 18 inches on the foot wall, five inches on the hanging wall, and numerous strings from one to two inches in width. The ore is argentiferous galena and zinc-blende, the latter predominating. This is one of the most promising veins in the district, and surely cannot well be excelled as an ore producer."

[FROM AN OCCASIONAL CORRESPONDENT.]

## North Carolina.

MINING AND MILLING—THE WILSON MILL AGAIN.

CABARRAS COUNTY, N. C., Dec. 3, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

While speaking of the Alleghany gold belt at this point, in a June number of your JOURNAL, your types make me say that "its western side is in sulphuretted veins of talcose state." It should have read "quartz and talcose state," the more especially as nine-tenths of the veins spoken of are quartz.

Since that writing, I have wandered somewhat in a northwesterly direction, prospecting for health. My course lay through Iredell, Alexander, Caldwell and Wautauga Counties. The two latter—on my route, at least—are richest in "indications." In ascending the Blue Ridge by the old turnpike, a large number of quartz veins are crossed, ranging in width from two to twenty inches, although averaging small. Their general course is N N E., and the country rock is slate stratified vertically, but rather crooked or "wavy" in its cleavage. No sulphurets of any kind were observed on the road, although some were brought me from points not far distant; one sample from Alexander County yielding gold by roasting. As far as I was able to judge, most of the ravines give a show of gold, although very few will pay for working. Wautauga extends from the summit of the Blue Ridge to the Tennessee line, the latter being also the summit of the Alleghanies. Between these ranges the depression is not great, and is full of mountains. Quartz veins occur of much the same character as those southeast of the Blue Ridge, and the streams have a spice of gold. Near Boone, the county-seat, is a small plateau drained by three or four "branches" (rivulets) all bearing gold. Two have been worked somewhat, and paid fair wages, if common report may be credited. In the best of these I found the gold in a stratum of quartz gravel from six to twelve inches thick, overlaid by two and a half to four feet of clayey loam. Some 3,000 dwts. were washed out with a rocker,

during which considerable surface was explored. Nothing very rich was found, the gravel deposit being quite uniform and extensive. My own tests with the pan indicate fair pay by sluicing. The gold, though not coarse, is heavy; the gravel washes readily, and there is sufficient water and fall for moderate operating. These alluvial deposits are generally attributed to some undiscovered quartz veins traversing the plateau, and there is float-rock enough on its surface to give the opinion some apparent value. But there is no outcrop, nor am I aware that any search has been made for "blind leads." The surface quartz corresponds with that dug from the branches, being, like all the veins I examined, white, slightly translucent and without sulphurets. During my stay, some friends visited Elk Knob, one of the Blue Ridge observatories, and brought away specimens of iron and copper pyrites, and some very porous scoria. Quite an excitement prevailed respecting a district some 16 miles west of Boone, where a large vein was reported to be fearfully rich in silver. I obtained two specimens, one from the vein at 25 feet depth, the other from the surface of a rather remote extension. This latter was a rich copper sulphuret with a little quartz adhering, and the other a half pulverized mass of bluish grey color, and showing minute metallic crystals. It is evidently a sulphuret of some kind, disintegrated without oxidation. Ore very like this in appearance comes from certain levels in the Comstock and from the Tarshish Mine in Alpine County, California. Whether the resemblance extends farther, I have not the means of knowing.

The great abundance of water-power and timber, and the cheapness of labor and miners' supplies, offer rare facilities for mining in that entire region, when it is definitely ascertained that there are paying mines. An affirmative decision of that little question seems to be about all that is wanting to make it a first class Eldorado. But it is fortunate in other respects. Although rough, the soil is productive, the air cool and healthy, the mountains well stocked with game and the streams with fish. All the easy slopes of the lesser mountains are cleared to their very summits, but old "Grandfather" and some of his rocky neighbors are still wild as in the middle ages. Bruin yet abides in the gloom of their laurel, and will until bears go out of fashion; visiting the farms of his biped neighbors when he feels like sampling the young corn or caressing tender "shoats." I left while the season was yet early for deer and fox driving, but the scenery was charming and the trout very large and speckled and hungry.

I am much obliged for your practical suggestions in a late issue, on the necessity of thorough and exact tests in milling ores. Statements embodying the number of tons treated, the character of the material, and the days, hours and minutes consumed in the operation, are imperatively demanded. Engineers, millmen, and their backers have a keen eye for facts, although not particularly tolerant of opinions.

I saw the "Wilson Steam Stamp-Mill" a few days ago in Montgomery County, the working of which you had under consideration in the remarks just alluded to. I am satisfied the ores of the Russell Mine average soft, particularly the slate. This must be the case, I think, or the shoes and dies used would have shown greater punishment. The mill has also been fortunate in having the care of a competent machinist. With the largest allowance for these advantages, it is still my "opinion" that this mill has a remarkably clean record. The evidence of work accomplished, compared with the signs of wear in doing it, the entire absence of old iron and the concurrent testimony of the neighborhood, form a healthy verdict in its favor. H.

[We desire to assure our correspondent that the several letters promised on matters pertaining to the mines of North Carolina, will be welcome.—ED.]

## Nevada.

**The Comstock.**—During the month of October $26,641 26 in bullion was obtained from 1,228 tons of Hale & Norcross ore. During the same period the Crown Point receipts of bullion amounted to $45,669 51, and the expenses, including disbursements for supplies, foot up about $65,000. In September the bullion returns aggregated $44,369. The bullion returns of the Savage for the month of October foot up $128,000, against $140,000 in September.

**Humboldt County.**—The *Winnemucca Argent*, Nov. 14, reports that week by week the laboring force is increased in the Humboldt mine, and as their development progress, additional proof is given that they are better than ever represented. It continues:—"In Winnemucca Mountain S. Kennel & Co. are taking out and shipping ore to San Francisco which abounds in horn silver and a black silver ore, which assays high up in the thousands per ton, and all the ore gives large results. The mine is three and one half miles from the depot, and is supposed to be a part of the Union Series upon which Mr. L. C. Pease is prosecuting work for a New York Company. Kunkel & Co. are running a tunnel in the vein, and it is now 120 feet, with a well-defined ledge at all points. Tuesday last eleven tons were shipped for San Francisco, and from returns before received and the developments in the mine, there can be no doubt but ore shipments will continue to be made and in increased amounts. This vein is traceable on the surface for two miles—many places cropping out boldly. The Little Giant mine at Battle Mountain is keeping up its rich reputation. Atchison's mill recently started up on ore from it, and G. W. Fox passed down Virginia the other day with seven thousand dollars worth of bullion. The mill has just been erected, and is not doing as close work as it shortly will. The last ten tons worked in the Golconda mill gave an average result per ton of a few cents short of two hundred and seventy dollars, and the Atchison mill will show as high yield as soon as it can be got fairly at work with needful chemicals. The tailings are carefully saved for re-working. Other ores from this district have been tried by mill process and show large yields." The following, clipped from the Virginia City *Enterprise*, Nov. 11, tells of the reception of the Little Giant's gold brick in that city. Says that paper:—"Bonsfield & Co., assayers in this city, yesterday received a very fine lot of silver bullion for melting and assay from the Little Giant mine, Battle Mountain, Humbolt County. The lot of bullion was the result of a crushing of 31 tons of ore worked at John Atchison's mill, and weighs 443 pounds, which has been moulded into five beautiful bars. The total value of the bars is $7,616 80, being at the rate of $245 69 per ton. The average value per ounce of the five bars $1 26 84-100, and the average fineness 981—the bullion contains no gold. The Little Giant mine is the property of Messrs. Fox & McBeth, and although an outside mine, appears to pan out about as well as some of our *inside* mines. The bricks may be seen on the counter of the Bank of California, in this city."....The Gold Run mines continue to improve in appearance, and the average yield of the Golconda ore is increasing as well as the fineness of the bullion.. The Humbolt *Reporter*, Nov. 14, says of the Rochester mine and Company:—"H. L. Onderdonk, president, and Daniel Putnam, one of the trustees of the Rochester Company, left this place for their home in Batavia, New York, on last Thursday. These gentlemen remained with us some ten days, posting themselves on our mining prospects generally, and on the Rochester mine particularly. It will require at least twenty thousand dollars to develop the mine, besides a like sum to erect a mill. They propose to raise this sum from the stockholders, if possible, on their return home, and proceed to work. The company was indebted to the amount of $4,000, which has been paid by Mr. Putnam... Gov. Fall's new road, on which he has expended a great deal of labor and money, is now completed and ore teams passing over it. This new road shortens the distance from the mine to the mill and is a much easier grade to haul over.....The Seminole mine, after a temporary suspension of work, has made arrangements to prosecute operations with vigor. A contract has been let to Evan's & Blackford to continue the tunnel 200 feet, the work to continue on Monday next."

### The Eberhardt.

[From the Reese River *Reveille*, Nov. 20.]

At the present time there is perhaps no other silver mine in the United States, and, for all we know, in the world at large, attracting so much attention as the Eberhardt, located on White Pine District, Lander county. We propose to furnish our readers a few facts concerning this wonderful mine, such only, however, as we have been enabled to gather from authentic sources. The mine was discovered and located on the third day of January, 1868, by F. E. Eberhardt, whose share of its untold wealth consists mainly, if not wholly, in its bearing his name. According to mining regulations only a certain number of feet on any one lode can be located in the name of a single person. In the White Pine District the number is restricted to two hundred, except that the discoverer of a lode may locate two hundred feet extra for his discovery. Mr. Eberhardt was alone when he made the discovery, and in locating took up for himself four hundred feet in right of his being the discoverer. The ledge was supposed by him at the time of making the location to run north and south, and as usual in that district he made two locations on the same lode, claiming from a centre monument, one thousand feet north and eight hundred feet south. He placed his own name in the claim of one thousand feet north, together with the names of I. F. Cole, F. Woodard, and A. Ammon, giving to each of these two hundred feet. In the location of eight hundred feet south he located W. McCauley, F. Drake, J. W. Crawford, and E. R. Sproul, each two hundred feet. The place where the location was made, from its southern exposure was clear of snow, and Mr. Eberhardt was induced to locate in that particular spot from seeing ledge matter exposed at the surface. It was made, just as all other mining claims are, upon the faith of surface indications and not from any knowledge of its real value. But in order to give any correct idea of the Eberhardt south, it is necessary to speak of some other locations upon the same mineral deposit, or contiguous to it. The mine is situated about a half mile west of the present town of Treasure City, Nothing was done upon it amounting to any development until after the location of the Blue Bell, Grey Eagle, and Keystone. These three claims were located on the 12th day of May, 1868, and in the order named. They were all recorded on the 20th day of the same month. The Blue Bell was discovered and located by E. Applegarth, who claimed for himself four hundred feet; A. Townsend and E. R. Sproul, each, two hundred. It was located a little further down the slope of the same hill, east of the Eberhardt, and was at that time supposed to be a separate ledge. Mr. Applegarth discovered a small streak of ledge matter, containing rich metal at the point where he made this location. Being a pioneer prospector, his practiced eye told him that there was a mineral deposit beneath the capping of lime rock, and the subsequent developments have more than realized his most sanguine expectations. The Grey Eagle was located a short distance north of the Blue Bell, by Wm. Harrison and John Turner, the latter the adopted son of Dr. E. X. Willard, then of Austin, now of White Pine District. Mr. turner being under majority used his father's name in the location, and the ground was claimed for Dr. E. X. Willard, T. J. Read, H. Mayenbaum and Frank V. Drake—each two hundred feet. The Keystone ledge was discovered by following up the evidences so well known to miners, along a canyon or ravine, called "float," until arriving at a point where the lode cropped out. It was discovered and located by E. Applegarth, John Turner and Wm. Harrison—all being present at the time. It was claimed for Applegarth, three hundred feet; Willard, two hundred and fifty feet; and Harrison two hundred and fifty—the discovery being divided between the several locators. The Keystone was located a short distance North of the Eberhardt monument, and at that time supposed to be a separate ledge. The Richmond ledge was located on the 19th of June, 1868, as a claim of twelve hundred feet, and the Defiance on the 11th of August last. The Richmond is located a short distance farther down the slope of the hill, below the Grey Eagle and nearly opposite the Blue Bell and the defiance, between the Blue Bell and Eberhardt. The country rock of the locality consists of limestone, and the ledge matter of the Eberhardt mine is composed mainly of quartz and spar bearing mineral in rich paying quantities. It was soon demonstrated that the Keystone and Eberhardt South, were one and the same ledge of mineral deposit. Then, that the Blue Bell, Defiance and Eberhardt South were one and the same—thus developing the Eberhardt South from its north to its south wall, (its course having proven to be east and west instead of North and South as at first supposed) to be one hundred and eighty-four feet wide, with rich ore the entire width. Still further developments led to a claim on the part of the Eberhardt Company, that the Richmond location, was part and parcel of the Eberhardt South, whilst the owners of the Richmond, claim that their location is a separate and distinct ledge. This dispute has given rise to a lawsuit which is now pending in our District Court, and which precludes us from saying anything on the one side or the other of the questions at issue between these companies. The lowest workings at present on these claims, is in Blue Bell shaft, which has been sunk to a depth of sixty feet, showing the same character of rich ore at the bottom as that taken out at a depth of thirty feet, and which has given to it so much celebrity. The original workings upon the Eberhardt and Keystone, consist of cuts or open excavations into the side of the hill, quite near and alongside of each other, the Keystone being further up the hill. They extend thus into the hill about fifty feet, and from these open cuts, some drifting has been extended further. These claims—the Eberhardt and Keystone—are kept separate by leaving a small streak of pay ore between them. The Eberhardt and Blue Bell have consolidated and owned by Frank Drake, E. R. Sproul, L. Barris, J. W Crawford, and E. Applegarth. The Defiance has ceased to exist—the locators having surrended up to the Eberhardt, their location, after the development showing it to be a part of that ledge. The Keystone is owned by E. Applegarth, E. X. Willard and John Turner. The owners of the Keystone and Eberhardt commenced to take out pay ore from their claims about the 20th of May. We are not able to furnish exact results nor seperate proceeds—can only give something near the amount in value of ore taken out and reduced from both which we state in round numbers at four hundred thousand dollors; and the ore taken out, but not yet reduced, at three hundred thousand. The space of ground worked over in taking out this ore is but small in comparison to the entire ledge matter exposed, and we are assured that there is pay ore in sight exceeding in value that already taken out. The Eberhardt Company recently bought the quartz mill built at Silver Springs by General Page, which they now employ exclusively in working ore from their own mine. Their average yield is over a thousand dollars per ton, and the Keystone yields correspondingly, as shown by the last quarterly returns. This, too, after the very rich chlorides are selected out for smelting, being too rich to run through the stamps. The owners of these rich mines were, till recently, all citizens of Austin, and one year ago none of them made much show on our tax lists; but to-day they are owners of mine which we presume could not be bought for less than two million dollars. Eberhardt, the discoverer of this Aladin of wealth, placed himself in the north location and his friends in the south, where the rich deposits of minerals, already spoken of, were found and do now exist. But while he may not have made anything out of this location, he has other interests in the district, which are cared for by the friends his location has made wealthy, he having gone East, and which are an independent fortune to him. McCauley sold his two hundred feet in the Eberhardt South for twenty-five dollars gold coin. Harrison sold two hundred and fifty feet in the Keystone a few days after its location for twenty-three hundred dollars and went to the States, supposing doubtless he had done well enough to leave the country. The mineral wealth of White Pine district is not confined to the Eberhardt and Keystone, although they are the foremost mines in the district so far as developments have been made.

## Manufacturing and Mechanical Notes

### NO. XLI.

### Miner's Street Lamp.

It is singular that while so much attention has been given to new designs for chandeliers, pendants, brackets, etc., to be used in-doors, but few attempts have been made to improve the appearance or increase the usefulness of our street lamps. The patterns now generally used is the same employed ever since the first introduction of gas. The engravings present views of an improved lamp for this purpose. Its beauty of form is apparent at a glance, and its superiority in other respects, to the old style, can be easily demonstrated. Fig. 1 represents a post-lamp for lighting streets. These are also made with brackets to fasten on the wall. Fig. 2 shows a hanging-lamp for depots, markets, etc. The lamps differ only in the mode of supporting. In Fig. 1, it rests on four small rods of iron, by which it is secured to the lamp-post. The glass is made with an outward projecting flange at its top, by which it is suspended in the dome, which projects beyond the glass to protect it from rain and snow. The under side of this projection is painted or enameled white, to better reflect the rays of light. The burner passes slightly through an aperture in the bottom of the glass, and the gas is lighted through this hole. The dome is hinged on one side, so that it may be turned over, exposing the glass for the purpose of cleansing, etc. It is evident that this form of glass is stronger, and is less liable to be broken by a blow than a flat pane, and it being globular, will assist in dispersing the rays of light. No obstruction is offered the light, except the slight rods which support the lamp. Although this lamp was designed for street purposes, it is better adapted for mines and quarries than any lamp in the market. E. A. HEATH & Co., No. 400 West Fifteenth street, New York city, are sole manufacturers, and their sample room is at No. 44 Murray street.

Fig. 1.

Fig. 2.

### Manufacture of Steel.

Puddled bar is converted into steel, according to the invention of Mr. V. Gallet, a British metallurgist, by coating the bars with a paste composed of wood charcoal, 20 parts; soot, 12; lamp-black, 15; ivory black, anthracite, plumbago, 1 each; carbonate of lime, 33; carbonate of potash, 3 to 20 parts; carbonate of soda, caustic of potash, sea salt, sal ammoniac, 1 each; clay, 13: oxide of manganees, 3; and resin-3 parts—the whole combined with water. The iron is coated with the paste, and the cementation conducted in the usual manner.

### Explosive Missiles.

At a conference held at St. Petersburg recently, to consider the non-employment of explosive missiles in war, it was decided that no explosive projectiles weighing less than 400 grammes (0·88lb.) shall be used.

## MARKET REVIEW.

FRIDAY EVENING, Dec. 11, 1868.

**Gold and Silver Stocks.**—Prices this week show but little change from those of last week. Consolidated Gregory continues to advance, and $5 25 is now offered for it. Smith and Parmelee is bought at $4 25—800 shares selling yesterday at that figure. Nevada Stocks remain without change. The following quotations are published by the Stock Board:

| | Bid. | Asked. | | Bid | Asked. |
|---|---|---|---|---|---|
| Alameda Silver | .. | .. | Kipp & Buell Gold | .. | 10 |
| American Flag | .. | 30 | La Crosse Gold | .. | 20 |
| Bates & Baxter Gold | .. | 50 | Liberty Gold | .. | 3 |
| Benton Gold | .. | 25 | Manhattan Silver | 85 00 | .. .. |
| Bobtail Gold | .. | 1 25 | Midas Silver | | 75 |
| Black Hawk Gold | .... | .... | Montana Gold | 45 | 60 |
| Consolidated Gregory | 5 25 | 5 35 | New York | 1 20 | 1 50 |
| Edgehill Mining | .... | 2 50 | Nye Gold | .. | 3 |
| Gold Hill | .. | 1 00 | Owyhee Mining | 18 00 | 30 00 |
| Gunnell Gold | .. | 50 | People's G. & S. of Cal | .. | 25 |
| Grass Valley | | 40 | Quartz Hill | 75 | 80 |
| Hamilton G. & S. B. | .. | 85 | Rocky Mountain Gold | .. | 10 |
| Holman | .. | 2 5 | Smith & Parmlee Gold | 4 20 | 4 30 |
| Hope Gold | .. | 10 | Texas Gold | .. | 5 |
| Twin River Silver | 1 00 | 5 00 | Corydon | | 20 |
| Gunnell Union | .. | 30 | Symonds Fork Gold | 25 | .. |
| Combination Silver | 2 50 | 6 00 | N. Y. & Eldorado | | 10 |
| Sensenderfer | 4 50 | .... | Mariposa | 5 | 5½ |
| Quicksilver | 22 00 | 22 50 | Mariposa preferred | .... | 22 |

**Copper Stocks.**—Coppers are stronger. 50c is offered for Davidson against 70 asked. Flint Steel River is quoted, 1 90 offered, 5 00 asked.

**Copper Stocks.**—The following will show the prices of mining stocks bid in Boston this day, Dec. 11:

| | | | |
|---|---|---|---|
| Copper Falls | 14½ | Quincy | 18 |
| Franklin | 14 | Cary Improvement | 7½ |
| Hancock | 3½ | Water Power | 14¾ |
| Minnesota | 2 | Bos. Hart. & Erie R. R. | 23½ |
| Calumet | .. | Isle Royal | .. |

**Petroleum Stocks.**—Prices have declined throughout the list, save in one or two instances. They are quoted:

| | Bid. | Asked. | | Bid. | Asked. |
|---|---|---|---|---|---|
| Bennehoff Run | 40 | 90 | Rynd Farm | 18 | 22 |
| Brevoort | 90 | 1 30 | United Pet. Farms | 10 | .. |
| Buchanan Farm | 48 | 55 | Union | 8 50 | .... |
| Central | 41 | 55 | United States | 1 75 | 2 00 |
| Clinton Oil | 1 10 | .... | Sherman & Barnsdale | 80 | .. |
| National | 3 00 | 3 75 | Second National | .. 2 | .. .. |
| N. Y. and Alleghany | .. .. | 2 15 | Bliven | .. .. | .. .. |
| Pithole Creek | | 1 00 | Rathbone | .. .. | .. .. |
| Home Petroleum | 1 00 | 2 75 | Northern Light | .. .. | .... |
| Pacific Oil | .. .. | .... | | | |

**Miscellaneous Stocks.**—Quicksilver mining is quoted at 21c.@21½; Wallkill Lead is quoted at $12@13 · Rutland Marble, $16 00@$17 25; Brunswick City L. $9 75; Lehigh & Susquehannah Coal, 50 75; Cary Imp. $6 75@8 00; Cumberland Coal Preferred, 36; West. Union Tel., 37½; Pacific Mail 114½; Canton Co., 2d c. 47½; Boston W. Pow. 14½; American Express, 44; Merchants Union Express, 16½; New York C., 131@123½; Harlem R. 120; N. Y. & N H. R. 140; Reading, 97@97½; M. S. & N. I. 88½; Mich Cen 118½; Chicago & N. W., 75½; Chi. & N.W. Pref., 77½; Chi. R. & I., 105½; Mil. & St. P., 82½@67½; Cle & Tol. 108; C B. & Q. R. 172; Tol. W. & W. 55½@56; T W & W Pf. 70½; New Jersey C. R., 113½@114; P. Ft. W. & C., 110½; Lake Shore R. R., 99½; Mar & Cin 1st P. 22½.

**State, R. R. and Other Bonds.**—Tenn. St. 6's, ex epn., 68½; Tenn St 6's new, 68; N. C. St. 6's, 63¼@65; Va 6's new, 57½; Va, St 6's ex epn. 55½; Missouri 6's, 89½; Ala. St 8's; A & T H 2d m. Pf. 84½; Tol & Wab 2d m. C & R I., & P R R 7's 97½; N. Y. & N Hpds 6's 96; Tol P & War. 1st East Div Am Dock & Imp Co. 7's 98; Merchants Bk 125; Bk of N. Y. 140; Bank of Com, 124½; Ninth N. Bank, 118; Fourth Nat Bank, 106½.

**Government Stocks.**—The market is weak and prices are lower, being quoted to-day as follows:

| | | | |
|---|---|---|---|
| U. S. 6s, 1881, coupon | 114¼@114¾ | U S 5-20s, '65, new coup. | 110¼ 110¾ |
| U. S. 5-20s, 1862, coupon. | 110¼ 110¾ | U. S. 5-20s, 1867, coupon. | 110¼ 110¾ |
| U. S. 5-20s, 1864, coupon. | 107 107¼ | U. S. 5-20s, 1868, coupon. | 110¾ 111¼ |
| U. S. 5-20s, 1865, coupon. | 107¼ 108 | U. S. 10-40s, ex. coupon | 105¼ 105¾ |
| 6 Per Cent. Bonds, P. R. R. | 98¾ 99¼ | | |

**Foreign Exchange.**—Foreign Exchange is quite firm, rates having advanced to close upon the specie-shipping point. There is a difference of ¼ between sight and 60 days' bills, which is equal to 5½ per cent. for money at London; the unusual difference is due partially to the expectation of an advance, next week, in the Bank of England rate of discount, confirmed by the loss of £246,000 of specie in yesterday's bank return, and the decrease of 13,000,000 fr, bullion in the bank of France; but it is perhaps more owing to speculative demand. The following are the quotations:

| | | | |
|---|---|---|---|
| Lon. (pr. bks), 60 dys | 109¼@ 109¾ | Swiss | 5.18¾ 5.17½ |
| Lon. (pr. bks), sight | 110¾ · .... | Hamburg | 36 36¼ |
| London, prime com | .... .... | Amsterdam (bankers') | 41 41½ |
| Paris (bankers'), long | 5.16¼ 5.16 | Frankfort (bankers') | 41 41½ |
| Paris (bankers'), short | 5.13¾ 5.12½ | Bremen (bankers') | 78¾ 79 |
| Antwerp | 5.18¾ 5.17½ | Berlin (bankers') | 71¾ 71¾ |

**Gold.**—Gold is firm, in connection with advancing tendency of exchange. The prices ranged to-day between $135¼@136¼. At the present rate for sight bills on London; bars can be shipped at a slight profit, and we understand that arrangements have been made for sending out some moderate amounts by to-morrow (Saturdays) steamers.

The continued loss of bullion by the Banks of England and France is regarded as foreshadowing an advance in the rate of interest on the foreign money markets, some regarding 5 and 6 per cent. at the Bank of England not a remote probability. The price has ranged at 136 and 135¼. Loans are made at 6 and 7 per cent. There is a hardening tendency in the money market. This morning 7 per cent. on demand loans has become the general rate; and some of the banks having called in loans, there is considerable activity in the inquiries.

Discounts show rather more activity, there being a considerable amount of paper offering. Rates are rather firmer, and we now quote prime names 7@9 per cent.

The total net debt on the 1st of December for the last three years compare thus:

| | |
|---|---|
| December 1, 1868 | $2,539,031,844 |
| December 1, 1867 | 2,501,205,751 |
| December 1, 1866 | 2,549,631,238 |

The following will show the Exports of Specie from the port of New York for the week ending December 5, 1868:

| | |
|---|---|
| Total for the week | $230,432 |
| Previously Reported | 69,123,685 |

The *Tribune* of this morning, speaking of the Morris and Essix and the Delaware, and Lackawanna and the Western consolidation, says:

"We understand that the final papers and agreements between the Morris and Essex and the Delaware, Lackawanna and Western Railroad were signed, by virtue of which the latter pay to the former 7 per cent., free of all taxes whatever, perpetually, and a contingent 1 per cent. in addition after a certain period. Also, that a stock dividend has been declared on Morris and Essex of 7 per cent., payable previous to January 1, from which date the dividend in cash begins. This arrangement is considered an advantage to both roads."

**Petroleum.**—Crude in bulk is a trifle firmer, held at 18@18¼c. Refined standard white—the market continues active, with an occasional lot taken for export. Prices are a little higher, closing at 33¼c. The sales are 6,000 barrels, buyer's option balance of the month, at 33c.; 500 bbls., same delivery, at 33¼c.; 100 bbls. on the spot at 34c.; and 1000 bbls. for Feb. delivery at 32c. For Philadelphia delivery there is a fair inquiry at strong prices, closing at 33c. for December. The sales are 14,000 bbls. for balance of the month at 32c., and 1,000 bbls. for March and April at 31½c.

| | | |
|---|---|---|
| Receipts for the week ending Dec. 8 | pkgs. | 15,743 |
| Exports for the week ending Dec. 8 | galls. | 676,198 |
| Exports from Jan. 1 | galls. | 49,605,199 |
| Exports same time last year | galls. | 31,187,599 |

The following is the quantity exported from other ports, Jan. 1 to Dec. 5.

| | 1868. | 1967. |
|---|---|---|
| From Boston galls. | 2,320,486 | 2,168,639 |
| Philadelphia | 36,710,012 | 27,672,573 |
| Baltimore | 2,588,021 | 1,315,157 |
| Portland | 704,907 | 900 |
| Total | 42,318,426 | 31,152,269 |
| Total exports from the United States | 95,234,867 | 62,662,492 |
| Same time in 1866 | | 62,559,342 |
| Same time in 1865 | | 25,967,923 |

**Copper.** has been very irregular, but on the whole the tendency is rising. Sales of the week have been 2,250,000 pounds, at 28¼@29½c. for all kinds, and 24¼@25c. for January and March delivery. Detroit is quoted to-day at 29½c., the other kinds at 24½c.

The London Market is firm at 70 for Chill Bars.

**Lead.**—Lead quiet and steady at $6¼@$6 70 for ordinary foreign.

Imports from Jan. 1st to Nov. 30th, 1868:

| | |
|---|---|
| From foreign ports pigs | 351,335 |
| Coastwise ports | 8,768 |
| Total pigs | 360,103 |
| Same time in 1867 | 386,937 |

**Tin.**—5,000 lbs. Straits sold, to arrive in Boston, at 25½c. On the spot, 3,000 slabs, Straits, has been sold at 26c., cash, and 30 days. Banca, 200 slabs sold at 29c.; English, 10 tons, at 26c.

Import from Jan. 1 to Nov. 30, 1868:

| | 1868. | 1867. |
|---|---|---|
| Pigs No. | 69,290 | 73,006 |
| Plates boxes | 776,958 | 724,908 |

The London market advanced to £105 for Straits.

**Spelter.**—6½d. for Silesian; this is a decline of a half cent, owing to large amounts. Imports from Jan. 1st to Nov. 30th, 1868: Plates, 195,465; 1867, plates, 123,911.

**Lime.**—Prices are well maintained, owing in a measure to the competition with North River lime being stopped by the freezing of the canal. We quote Rockland at $1 60 for common, and $2 for lump.

**Cement.**—Rosendale is firm at $2, cash.

**Cordage.**—The price of Manilla is reduced half a cent, say to 21@22c. for large and small sizes.

**Regulus Antimony.**—Is dull but steady—3 casks sold at 13½ cents, in gold.

**Oils.**—The movement in linseed continues at full prices: 10,000 galls. were sold, for January and February delivery, at $1 03 Crushers are realizing $1 05@ $1 07, casks and barrels.

**Paints.**—The market generally is quiet. Prime grades German Glue is moderately active and prices are steady; for common grades there is but little inquiry for these—prices are without quotable change—the sales are 2000 lb. Cologne at 25c; 8000 lb. Light Transparent German, 20 @ 21½; 2000 lb. English and 27,000 lb. Domestic on private terms. Of other goods the sales are 4 tons China Clay, from store, at $30; 5 casks Nitrate Lead, 14½c; 25 kegs Orange Mineral, 15½, currency; 5 casks do., 11 gold; 11 tons English Ground White Lead, 14½ @ 14¾; 25 kegs super Indian Red, 12½; 85 kegs No. 1 do., 11½; 50 kegs English Red Lead, 11½ currency; 10 casks Patent Dryer, in bulk, 7; 5 casks do., in tin, 8; 5 casks Imperial Green, 8 gold; 35 tons Paris White from store, 2½@2¾; and 50 bbls. Venetian Red, 2½, cash.

**Drugs and Dyes.**—Opium has been in active demand, and the market is very firm; a telegram received from London yesterday, reports sales at 35s., being an advance of 2s, on the previous day's quotation; sales have been made of 50 cases, here and to arrive, in bond, at $8 25@$8 30 gold. The sales besides are 720 cases Shell Lac (including 300 cases reported in our last,) part at 21c, in bond; 55 tons Soda Ash, 2½@2 9-16; 50 casks Sal Soda, 1½; 50 cases Licorice Paste, in bond, 12½ gold; Refined Camphor, $1 07½; 40 cases English Shell Lac, 44; 5000 lb. English Nitrate Lead, 14½; 400 kegs Bi Carb. Soda, $5 40@$5 50; 50 casks low test Bleaching Powder, 3c; 15 bbls. Salem Blue Vitrol, 11; 25 casks French Copperas, 2; 5 bbls. Baker's A. A. Castor Oil, 34; 15 cases do., 35 currency, cash; 40 bales Sorts Gum Arabic, 10 tons Acetate Lime, 8 casks Dutch Madder, 25 do, to arrive, 10,000 lb. Gum Kowrie, 100 cases do. to arrive, and 100 do. Singapore Gum Damar, on private terms.

## THE IRON TRADE.

NEW YORK, Dec. 11, 1868.

We have but little change to report in the markets; trade is very dull and sales small.

In American Iron we report 200 tons No. 1 Crane, private terms; 150 tons other brands also on private terms.

In Scotch Iron prices have advanced. Glengarnock is now held at $43. Consequently we have no sales of importance to report.

In Scrap Iron we note 500 tons from yard, sold on private terms.

We have no change or improvement to note in Bar from Store, business being light, and quotations nominal. We hear of no invoices offering. Sheet is steady at at our quotations.

BOSTON, December 9, 1868.

The demand for Pig Iron is steady, and further sales of Scotch at $41@$45 per ton for Gartsherrie, Coltners and other brands; and American Pig at $40 @$45 per ton. Bar Iron remains without change, with small sales at $90@ $95 for common, and $100@$105 for refined English and American. Russian Sheet Iron is quiet at 12@13c. per lb., gold.

Imports of Pig Iron from January 1 to December 5, 1868:

| | 1868. | 1867. |
|---|---|---|
| From Great Britain, tons | 20,264 | 29,695 |
| Coastwise Ports | 11,100 | 8,632 |

PHILADELPHIA, December 8, 1868.

In Pig Metal there is no change to notice. Sales of No. 1 Anthracite at $42@$43, and No. 2 at $38@$40. Scotch Pig is quite at $43 per ton, and Forge at $35@$35 50 per ton. Manufactured Iron commands $87 50 for Bars. Blooms are quiet.

### Lehigh Valley Iron Trade.

Pig Iron transported by the Lehigh Valley Railroad Co. for the week ending Dec. 5, 1868:

| From | Tons. | Total. |
|---|---|---|
| Carbon Iron do | 125 | 7,850 |
| Lehigh Valley Iron Co | 285 | 8,630 |
| Thomas Iron do | 730 | 29,935 |
| Lehigh Crane Iron do | 1050 | 29,055 |
| Allentown Iron do | 430 | 22,465 |
| Robert Iron do | 215 | 8,970 |
| Glendon Iron do | 360 | 19,935 |
| Other Shippers | 430 | 14,770 |
| Total | 3,625 | 141,519 |

### Imports of Foreign Iron and Steel at New York.

For the week ending Dec. 4,

| | Quantity. | Value. |
|---|---|---|
| Railroad Iron, bars | 5,480 | $35,490 |
| Hoop, tons | 61 | 2,615 |
| Sheet, tons | 882 | 31,221 |
| Pig, tons | 600 | 8,917 |
| Other Iron, tons | 3,099 | 83,901 |
| Chains and Anchors, packages | 58 | 3,183 |
| Tubes, packages | 2,119 | 4,585 |
| Nails, packages | .... | .... |
| Steel, packages | 6,309 | 74,407 |
| Machinery | 423 | 33,653 |
| Pipes | .... | 3,471 |
| Anvils | 73 | 590 |
| Wire | 344 | 3,031 |
| Total value | | $284,963 |

### Market Prices.

NEW YORK, Dec. 11, 1868

DUTY.—Bars, 1 to 1¼c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate; 1½c. per lb.; sheet, band, hoop and scroll, 1¾ to 1¾c. per lb.; pig, $9 per ton, polished sheet, 3c. per lb. Payable in gold.

| | | | | |
|---|---|---|---|---|
| Am. pig, fy. No 1, best, | $41 00@43 00 | | | |
| " " 2x frdy, | 36 00 | 39 00 | | |
| " Grey Forge | 34 00 | 37 00 | | |
| White and Mottled | 32 00 | 35 00 | | |
| Pure white for Cal. mar. | 32 50 | — — | | |
| Scotch Pig, No. 1, best bd | 42 00 | 45 00 | | |
| " " " outside, | 42 00 | — — | | |
| Wt. No. 1 Scrap f'm yd. | .... | 46 00 | | |
| Ex ship | 45 00 | .... | | |
| Bar, Ref., En. & Am. | 90 00 | 92 50 | | |
| Bar. Sw's, as. sizes, gold | 87 50 | 80 00 | | |
| Old Rails | 47 00 | .... | | |
| R.R. Iron, For., fm Stock gold | 51 50 | 52 50 | | |
| R. R. Iron For., to imp. | 50 00 | — — | | |
| " " Amer. at wks. currency | 77 00 | — — | | |
| R. R. Iron, Am., deliv'd | 80 00 | — — | | |
| Sti rails of any pattern at works, currency | | | | |
| Solid Steel ris. For., gd. | 110 | — — | | |
| Street Rails at works | 85 00 | — — | | |
| Light ris. for mines &c. at works | $85 00@ | — — | | |
| Do. delivered here | .... | — — | | |

STORE PRICES.

| | | |
|---|---|---|
| Bar, Swedes, ord'y sizes | — — | 155 00 |
| Bar, Eng. and Am., rf'd. | — — | 100 00 |
| Bar, Eng. & Am., com. | — — | 90 00 |
| Scroll | 180 00 | 175 00 |
| Ovals and half round | 125 00 | 155 00 |
| Band | 130 00 | — — |
| Horse Shoe | 150 00 | — — |
| Rods, ¼@3-16 inch | 165 00 | 165 00 |
| Hoop | 185 00 | 190 00 |
| Nail Rod, per lb | 9½ | 10¼ |
| Sheet, Rus. as'd. Nos. (gold) | 11¼ | 18 |
| Sheet, s'gle. D & T. com | 5½ | 7½ |
| Rails, Eng., gold, ton | 51 00 | 52 00 |
| Rails, American | 79 00 | 81 00 |

STEEL.

| | | |
|---|---|---|
| English, cast 2d & 1st qual. | 18 | @23 |
| Eng. Spring 2d & 1st qual | 10 | 12½ |
| Eng. Blister 2d & 1st qual. | 11½ | 20 |
| English Machinery | 18½ | 16 |
| Eng German 2d & 3d qual. | 14 | 16 |
| Am. Blister, "Black Diam'd," | 10½ | 16 |
| American, Cast, Tool " | 19 | — |
| American, Spring " | 10 | 13 |
| American Machinery " | — | 13 |
| American German " | 10 | 13 |

PITTSBURGH, December 5, 1868.

The market for crude iron during the week, says the *Commercial*, is substantially the same. Whilst the receipts of medium grades of standard forge irons continue in barely sufficient supply to meet the demand, foundry descriptions are in rather better supply than at date of our last report. The operations for the past two weeks were as follows:

| | This Week. | Last Week. |
|---|---|---|
| Anthracite | 330 tons. | 810 tons. |
| Bituminous | 2580 tons. | 1455 tons. |
| Charcoal R. H. | 945 tons. | 510 tons. |
| Alleghany Coke | ... | ... tons. |
| Total | 3,805 tons. | 2,775 tons. |

The above shows an increase in sales for the week of 1030 tons.

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORES.

| | | |
|---|---|---|
| 100 tons Medium Gray, from yard | 39 00 | 4 Mos |
| 120 tons Medium Gray, from yard | 39 50 | 5 mos |
| 200 tons Medium Close, from yard | 39 00 | 4 mos |
| 60 tons Medium Close, from yard | 39 50 | 6 mos |
| 300 tons Medium, at furnace | 37 50 | 4 mos |
| 60 tons Medium, at yard | 39 50 | 6 mos |
| 400 tons Close Medium, to arrive | 39 50 | 5 mos |
| 190 tons Open Gray | 40 00 | 6 mos |
| 500 tons Inferior Close Forge for Rails | 35 50 | 4 mos |
| 500 tons Close Forge, deliverable at furnace | 36 00 | 4 mos |
| 100 tons Good Medium Gray, to arrive | 39 50 | 5 mos |
| 60 tons Good Medium Gray, to arrive | 39 00 | 4 mos |

ANTHRACITE.

| | | |
|---|---|---|
| 50 tons Mottled | 38 00 | 4 mos |
| 50 tons Anthracite | 39 50 | 4 mos |
| 40 tons No. 1 Anthracite | 42 00 | 4 mos |
| 40 tons No. 2 Anthracite | 41 00 | 4 mos |
| 50 tons No. 1 Anthracite | 41 50 | 4 mos |
| 70 tons Forge | 38 00 | 5 mos |
| 20 tons No. 2 | 40 00 | 4 mos |
| 10 tons No. 2 | 38 50 | —cash |

HANGING ROCK CHARCOAL.

| | | |
|---|---|---|
| 30 tons Foundry | 45 50 | 4 mos |
| 200 tons Common Foundry | 43 00 | 4 mos |
| 100 tons No. 2 Common Foundry | 42 00 | 4 mos |
| 130 tons Close Forge | 40 00 | 90 dys |
| 200 tons No. 1 Foundry, to arrive | 43 50 | time. |
| 150 tons Extra, to arrive | 45 50 | 6 mos |
| 50 tons Extra Juniata Forge | 47 00 | 5 mos |

BLOOMS.

| | | |
|---|---|---|
| 45 tons No. 1 Juniata | 95 00 | 6 mos |
| 20 tons No. 1 Juniata | 92 00 | —cash |

CINCINNATI, December 8, 1868.

PIG.—Receipts continue light, and with fair demand prices are maintained at the advance.

| | Per ton. | Days | | Per ton. | Days |
|---|---|---|---|---|---|
| Hanging Rock H. B. Mill. | $37 | 38—90 | Tennessee Cold Blast | 43 | 45—90 |
| Hanging Rock H. B. Fou | 41 | 42—90 | Missouri | 47 | 50—90 |
| Hanging Rock Cold Blast | 53 | ..—90 | Jackson (stone coal) Fou. | 38 | 39—90 |
| Hanging Rock Car Wheel | 55 | 60—90 | Blooms | 100 | 105—90 |

MANUFACTURED.—Trade is quiet, but no change in prices, though concessions are made from card rates.

| | B. | | C. C. | | B. | | C. C. | |
|---|---|---|---|---|---|---|---|---|
| Flat Bar | 4 | 4½ | 5½ | 5½ | Half Oval and ½ Round | 4½ | 5½ | 6 6½ |
| Horseshoe Iron | 5½ | 6 | 6½ | 7½ | Angle Iron | 5½ | 6½ | 6½ 7½ |
| Heavy Band | 4½ | 5 | 6 | 6½ | T & Hollow Rail Iron | 6 | .. | 7½ .. |
| Round and Square | 4 | 8 | 5½ | 9½ | Saw-mill Track | .. | 6 | 7½ .. |
| Saddle tree | 5½ | 6 | 6½ | 7½ | Sheet Iron, 10 to 17 | 5½ | .. | 8½ .. |
| Hoop and Light Band | 5½ | 9½ | 6½ | 11 | Sheet Iron, 27 | 6½ | .. | 9½ .. |
| Oval Iron | 4½ | 5½ | 5½ | 6½ | Boiler-Plate, 3-16, 5-16 | .. | .. | 7 .. |

LONDON, Nov. 20th, 1868.

In Staffordshire there is every reason to regard the condition of the trade as satisfactory. The cessation of orders for shipment to the Baltic has not sufficed to prevent the continuance of a good demand, and a steady trade during the winter is confidently anticipated, with an active demand as soon as spring commences. Advices from the United States hold out hopes of considerable requirements for that country. Manufacturers are now indisposed to take orders far in advance based upon present prices. In Wales the rail mills continue busier than they have been for a long time, and this will tend to allay the fears lately entertained as to there being sufficient orders to keep hands employed with regularity after the shipping season of the northern ports had been closed. Prices remain firm, and several makers have refused to accept contracts for delivery next year at present prices. Home enquiries are more encouraging; large quantities are still being shipped to South America, and there are several good orders for that country remaining on makers' books. To the United States shipments are steadily increasing, the total sent during the present month being 14,098 tons. In Sweedish iron there is not much doing at present. In Scotch pig-iron an improved business has been done during the week, and the price at one time went up to 54s. cash; it afterwards, however, receded to 53s. 9d. cash, and 53s. 10d. one month.

| Iron. | Per ton. | | Iron. | Per ton. | |
|---|---|---|---|---|---|
| Bars, Welsh, in L'n | £6 10 0 | £6 15 0 | Pig, No 1, in Clyde | 2 14 0 | 2 19 0 |
| Bars, W., to arrive | 6 10 0 | 6 12 7 | Pig, f o b in Tyne or Tees | 2 9 6 | .. .. |
| Nail Rods | 7 0 0 | 7 2 6 | Pig, Nos 3, 4, f o b in Tyne or Tees | 2 6 6 | 2 7 0 |
| Do., Staff's'e, in L'n | 7 12 0 | 8 10 0 | Railway Chairs | 5 10 0 | 5 15 0 |
| Bars, in London | 7 10 0 | 9 10 0 | Railway Spikes | 11 0 0 | 12 0 0 |
| Hoops, in London | 8 2 6 | 9 15 0 | Indian Charcoal Pigs, in London | 7 0 0 | 7 10 0 |
| Sheets, single | 9 0 0 | 11 0 0 | Steel. | | |
| Pig, No 1, in Wales | 3 15 0 | 4 5 0 | Swede, in k's (rol'd) | | |
| Ref'd metal, in W's | 4 0 0 | 5 0 0 | Swede, in k's ham'd | 13 0 0 | 15 10 0 |
| Bars, com'n, in W's | 6 0 0 | .. . | Swede, in fagots | 16 0 0 | .. .. 0 |
| Bars, Merchant, Tyne, or Tees | 6 10 0 | . .. | English spring | 17 0 0 | 23 . 0 |
| Bars, railway, in W's | 6 0 0 | 6 0 0 | | | |
| Bars, Swede, in L'n | 9 17 6 | 10 5 0 | | | |
| To arrive | 10 0 0 | 10 5 0 | | | |

## THE COAL TRADE.

NEW YORK, Dec. 11, 1868.

The market can be reported quiet and light, with prices somewhat unsettled. The coal trade for the season is over, and shipments may be regarded as entirely suspended or this year. As we predicted last week, the miners stopped work. A few small collieries are at work, but no shipments will be made to tide-water. We learn from Philadelphia that stocks are very light at Port Richmond. Shippers and others are clearing up stock on hand. But few vessels are offering. Freights remain unchanged.

The following will show the exports of coal from the port of New York for the week ending Dec. 8, and for the season to that date, also the amount exported last year for the same period:

| | | | |
|---|---|---|---|
| Exports for the week | tons | | |
| Do. from January 1 | do | 61,201 | |
| Do. same time last year | do | 65,640 | |

BOSTON, December 9, 1868.

English Cannel continues quiet at $18@$20 per ton, for large and small lots. In Sidney and Pictou nothing of any consequenae has been done, and cargo sales are nominally $8.50@$9.00. Anthracite, in retail lots, is selling at $11@$12. and cargo prices are nominally $11@$12 per ton.

PHILADELPHIA, December 8, 1868.

There is less doing, and prices are rather lower.

The following table exhibits the amount of Coal that was passed over the various routes of transportation from the Pennsylvania Coal districts for the week ending Dec. 5, 1868, and for the season to that date. A comparison is also made with the amount transported the corresponding week in 1867 showing the increase or decrease, as the case may be:

| COMPANIES. | 1867. WEEK. | 1867. TOTAL. | 1868. WEEK. | 1868. TOTAL. | INC. OR DEC. WEEK. | INC. OR DEC. YEAR. |
|---|---|---|---|---|---|---|
| Phil. & Read. R. R. | 68,186 | 3,112,235 | 72,290 | 3,025,808 i | 4,104 | d 86,427 |
| Schuylkill Canal | 11,230 | 1,021,695 | 33,249 | 1,588,318 i | 2,019 | i 566,623 |
| Lehigh Valley R. R | 42,029 | 42,029 | .. .. | 35,344 i | .... | d 6,685 |
| Lehigh & Sus. R. R | 9,029 | 47,138 | 23,238 | 498,198 i | 19,364 | i 451,060 |
| Lehigh Canal | 29,490 | 1,006,603 | 21,737 | 987,947 i | 12,758 | d 16,656 |
| Scranton North | 10,263 | 477,214 | 10,424 | 580,060 i | 161 | i 102,806 |
| Scranton South | 22,229 | 1,165,310 | 29,463 | 1,028,106 i | 7,234 | d 137,204 |
| Penn. Coal Co. rail. | 19,312 | 779,152 | 18,223 | 873,364 d | 1,089 | i 94,212 |
| Penn. Coal Co. canal | .... | 21,169 | .... | 29,004 .... | .... | i 7,835 |
| Del. & Hud'n Canal | 31,800 | 1,362,685 | 35,052 | 1,640,118 i | 3,252 | i 277,433 |
| Shamokin | 9,585 | 462,102 | 10,207 | 472,900 i | 674 | i 10,798 |
| Trevorton | .... .... | .... .... | 1,219 .... | .... d | .... | .... .... |
| Short Mountain | 2,364 | 86,331 | 1,811 | 121,579 d | 553 | i 35,248 |
| Lykens Valley Co. | .... .... | .... .... | .... d | .... i | .... | .... .... |
| Hunt'g'n & B'd T'p | 5,140 | 228,652 | 4,971 | 261,215 d | 169 | i 32,563 |
| Wyoming South | .... .... | .... .... | .... .... | .... d | .... | .... .... |
| Wyoming North | .... | 82,698 | 1,266 | 89,152 .... | .... | i 6,454 |
| Williamstown Col. | .... .... | .... .... | .... .... | .... i | .... | .... .... |
| Total | 235,989 | 8,895,013 | 263,200 | 11,225,113 | | |
| | | | 235,989 | 9,895,013 | | |
| Increase | | | i 27,211 | i 1,330,100 | | |

### Report of Coal Transported over Lehigh Valley Railroad

For the week ending December 5, 1868, and previously this season, compared with same time last year:

| WHERE SHIPPED FROM. | WEEK. Tons. Cwt. | PREVIOUSLY Tons. Cwt. |
|---|---|---|
| Total Mahanoy | 6,857 01 | 456,292 16 |
| Total Hazleton | 17,987 16 | 1,020,092 04 |
| Total U. Lehigh | 466 09 | 38,306 19 |
| Total B. Meadow | 5,846 03 | 432,448 17 |
| Total Wyoming | 5,228 01 | 278,489 06 |
| Grand total | 35,344 10 | 2,225,630 02 |
| Same time last year | 42,029 05 | 1,948,385 05 |
| Increase | .... | 277,244 17 |
| Decrease | 6,684 15 | .... |
| Forwarded east from M. Chunk by r'l | 35,344 10 | 2,225,630 02 |
| Delivered at M. C'k and on line of r'd above that point | .... | 2,869 04 |
| At Penn Haven for ship't by canal | 4,184 06 | 202,461 10 |
| At M. Chunk for shipment by canal | 2,660 19 | 116,160 15 |
| Total by rail and canal | 44,252 05 | 2,603,102 11 |
| Same time last year | 43,118 07 | 2,080,156 16 |
| Increase | 1,133 16 | 522,945 15 |
| Decrease | .... | .... |

### Lehigh and Susquehanna Railroad.

Report of Coal shipped for week ending Dec. 5, 1868.

| WHERE FROM | WEEK. Tons. Cwt. | TOTAL. Tons. Cwt. |
|---|---|---|
| WYOMING REGION. | | |
| Newport Coal Co | .... | .... |
| Albrig'ton, Roberts & Co | 68 18 | 10,501 13 |
| New England Coal Co | 8 08 | 1,129 02 |
| Morgan Mines | .... | 92 18 |
| Warrior Run Mining Co | .... | .... |
| Parrish & Thomas | 364 08 | 18,680 16 |
| New Jersey Coal Co | 610 15 | 15,878 07 |
| Gaylord Mines | .... | 245 01 |
| Delaware & Hudson Canal Co | 250 03 | 10,512 17 |
| Lehigh & Susquehanna Coal Co | .... | 15 10 |
| Germania Coal Co | 551 01 | 20,504 08 |
| Franklin Coal Co | .... | 243 15 |
| Audenreid Improvement Coal Co | .... | .... |
| Wilkesbarre Coal & Iron Co | 12,633 14 | 310,031 14 |
| Union Coal Co | .... | 2,040 07 |
| Mineral Spring Coal Co | 447 00 | 10,017 08 |
| H. B. Hillman & Son | 164 08 | 2,486 11 |
| Bowkley, Price & Co | 193 07 | 2,785 00 |
| Wyoming Coal & Transportation Co | .... | 4,040 11 |
| Henry Colliery | 532 05 | 8,240 03 |
| J. H. Swoyer | 165 04 | 5,405 08 |
| Everhart Coal Co | 591 01 | 2071 15 |
| Morris & Essex Mutual Coal Co | .... | 78 19 |
| Shawnee | 187 12 | 20,077 11 |
| Pine Ridge Colliery | 690 05 | 11,265 12 |
| Lances Colliery | .... | 3,264 15 |
| Consumers Coal Co | 203 18 | 5,272 18 |
| Harvey Brothers | .... | 184 11 |
| Lehigh & Luz. Coal Co | 898 06 | 3,215 07 |
| Other Shippers | 669 07 | 10,748 08 |
| Total Wyoming Region | 18,950 14 | 480,304 05 |
| UPPER LEHIGH REGION. | | |
| Upper Lehigh | 3,718 19 | 120,501 09 |
| Other Shippers | 276 10 | 11,248 05 |
| Total Upper Lehigh Region | 3,995 17 | 131,749 14 |
| HAZLETON REGION. | | |
| A. Pardee & Co | 1,855 12 | 75,076 04 |
| Linderman & Skeer | .... | 1,408 08 |
| Sharpe, Weiss & Co | 533 18 | 41,067 04 |
| Wm. S. Halsey & Co | .... | 3,200 17 |
| Harleigh Coal Co | 393 17 | 32,864 17 |
| G. B. Markle & Co | 942 10 | 49,436 18 |
| Ebervale Coal Co | 1,569 07 | 29,192 12 |
| Stout Coal Co | .... | 14,671 18 |
| Buck Mountain Coal Co | 694 15 | 30,677 02 |
| Coxe Brothers & Co | 249 14 | 12,159 12 |
| Ashburton Coal Co | .... | 64 06 |
| Highland Coal Co | 326 08 | 16,604 17 |
| Pardee Brothers & Co | 34 14 | 8,640 18 |
| Jeddo Coal Co | 100 80 | 10,530 10 |
| Mount Hall (J. S. S.) | .... | .... |
| R. R. Carter | .... | 68 19 |
| Other Shippers | .... | 1,005 11 |
| Total Hazleton Region | 6,450 02 | 329,552 19 |
| MAUCH CHUNK REGION. | | |
| Lehigh Coal & Navigation Co | .... | .... |
| Summit Mines | .... | 55 08 |
| Room Run Mines | 2,021 15 | 36,986 16 |
| Other Shippers | .... | 17 00 |
| Total Mauch Chunk | 2,033 14 | 37,059 04 |
| " Mauch Chunk Region | 2,033 14 | 37,059 04 |
| " Hazleton | 6,459 08 | 329,552 19 |
| " Upper Lehigh | 3,995 15 | 131,749 14 |
| " Wyoming | 18,950 14 | 480,304 06 |
| Grand Total | 31,439 11 | 978,666 02 |
| Corresponding week last year | 4,874 12 | 47,138 02 |
| Increase | 26,564 19 | 931,528 00 |
| Decrease | .... | .... |
| Forwarded South from Mauch Chunk by Rail | 21,879 06 | 434,089 10 |
| Delivered on line of L. & S. R. R. ab've M'ch C'k | 1,359 15 | 64,109 04 |
| Delivered at Coal Port for shipment by canal | 8,182 10 | 480,467 08 |
| Total | 31,439 11 | 978,666 02 |

### Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR WEEK ENDING, DEC. 10, 1868.

| | RAILROAD. | CANAL |
|---|---|---|
| St. Clair | 5,060 | .... |
| Port Carbon | 2,687 | 2,239 |
| Pottsville | 259 | .... |
| Schuylkill Haven | 5,781 | 284 |
| Auburn | 1,360 | .... |
| Port Clinton | 3,374 | 1,060 |
| Company's use | 1,112 | .... |
| Total for week | 20,283 | 3,583 |
| Previously this year | 3,025,808 | 1,588,318 |
| Total | 3,046,091 | 1,581,901 |
| Same time last year | ..... | 1,032,925 |
| Increase | ..... | 548,676 |

### Lehigh Canal Coal Trade.

Shipped for the week ending Dec. 5, 1868.

| WHERE FROM. | TONS. CWT. | TONS. CWT. |
|---|---|---|
| Mauch Chunk Region | 8,619 02 | 377,930 09 |
| Beaver Meadow Region | 4,431 00 | 117,086 16 |
| Mahanoy Region | 98 04 | 4,711 13 |
| Hazleton Region | 5,119 16 | 277,156 01 |
| Upper Lehigh Region | 550 02 | 19,740 13 |
| Wyoming Region | 2,959 02 | 196,321 11 |
| Total | 21,787 09 | 989,947 05 |
| Corresponding week last year | 9,029 14 | 1,006,603 17 |
| Increase | 12,757 15 | .... |
| Decrease | .... | 16,656 21 |

### Cumberland Coal Trade.

By B. & O. Railroad.—The shipments over the Baltimore and Ohio Railroad, for the week ending Dec. 5, were as follows:

| | |
|---|---|
| From Cumberland and Pa. Railroad, via Cumberland | |
| Consolidation Company | 3,276 11 |
| Borden | 1,916 13 |
| Allegany | 85 07 |
| Midland | 500 11 |
| American | 237 11 |
| From George's Creek, via Piedmont. | |
| George's C. & I Company | 2,110 08 |
| Central | 3,410 01 |
| Atlantic | 501 05 |
| Savage Mt | 46 19 |
| Swanton | 365 14 |
| Potomac | 1,785 03 |
| Piedmont | 1,887 02 |
| Franklin | 206 07 |
| Hampshire | 2,460 10 |
| American | 695 08 |
| Barton | 384 00 |
| From Eckhart RR. | |
| C. & I. Co. | 2,323 13 |
| Total | 22,193 05 |

### Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

#### At New York, Dec. 5, 1868.

| | | | | | |
|---|---|---|---|---|---|
| Schuylkill R. A., choice | $ 9 00 | $.... | Schuylkill Chestnut | $7 00 | .... |
| " Ordinary | 8 50 | .... | Lehigh W.A.L'p old Co. | 8 00 | .... |
| " W. A. Lump | 7 50 | .... | " Broken | 8 75 | .... |
| " Steamboat | 7 50 | .... | " Egg | 8 00 | .... |
| " Broken | 7 75 | .... | " Stove | 8 50 | .... |
| " Egg | 8 00 | .... | " Chestnut | 6 50 | .... |
| " Stove | 8 50 | .... | Shamokin | 6 50 | .... |
| | | | New Haven | 1 35 | — — |

#### At Philadelphia, Dec. 10, 1868.

| | | | | | |
|---|---|---|---|---|---|
| Lehigh L'p and St'mb't | 6 50 | 6 75 | Henry Clay, Egg & St | 6 75 | 7 00 |
| " Broken and Egg | 6 75 | 7 25 | Locust Mount Lump | .... | 5 50 |
| " Stove | 7 75 | 8 00 | " Steamboat | 6 00 | 6 25 |
| " Chestnut | 6 00 | 6 25 | " Broken | 6 25 | 6 50 |
| Schuylkill R. A | 6 25 | 6 50 | " Egg | 6 25 | 6 50 |
| " Chestnut | 5 00 | 5 25 | " Stove | .... | 7 75 |
| " W. A. Lump | .. | 5 25 | Lorberry Coal | 8 00 | 8 00 |
| " Broken | 6 00 | 6 25 | Shamokin | 6 00 | 7 00 |
| " Egg and Stove | .. | 6 50 | Franklin, (Lykens Val.) | 8 00 | .... |
| " Chestnut | 5 25 | 5 50 | Broad Top | .... | 5 00 |
| Hill & Harris, Egg & St. | .. | 6 75 | | | |

SPECIAL COALS.—DEALERS' QUOTATIONS.

| | | | | | |
|---|---|---|---|---|---|
| Diam'd Vein R.A.,Sch'kill | 8 75 | .... | Old Co.'s W. A. Lehigh | 7 00 | 8 25 |
| Locust Dale W. A., " | 8 50 | .... | Mt. Pleasant | 7 00 | 8 25 |
| Honey Brook " Lehigh | 7 00 | 8 25 | Buck Mountain | 7 00 | 8 25 |
| Harleigh " " | 7 00 | 8 25 | Buck Ridge W.A.,Sh'kin. | 8 50 | .... |
| Spring M'n " " | 7 00 | 8 25 | H. Heils, E. F'klin, Lorb. | 8 50 | .... |
| Sugar Creek " " | 7 00 | 8 85 | New England Red Ash | 7 25 | 7 95 |
| Sugar Loaf " " | 7 00 | 8 25 | Wyoming | 7 50 | .... |

Dealers in these Coals may be found in our advertising columns.

#### Scranton Coal at Elizabethport, Dec. 10, 1868.

(Corrected weekly by D. L. & W. R. R. Co.

| | | | | | |
|---|---|---|---|---|---|
| Lump | 6 25 | .... | Egg | 6 50 | .... |
| Steamer | 6 50 | .... | Stove | 8 50 | .... |
| Grate | 6 50 | .... | Chestnut | 6 25 | .... |

#### Prices for Pittston Coal at Newburgh, Dec. 10, 1868.

(Corrected weekly by Penna. Coal Co.)

| | | | | | |
|---|---|---|---|---|---|
| Lump, per ton, 2240 lbs | .... | .... | Egg " " | .... | .... |
| Steamer, " " | .... | .... | Stove " " | .... | .... |
| Grate " " | .... | .... | Chestnut " " | .... | .... |
| Pea " " | .... | .... | | | |

70 cents additional to New York.

#### Lackawanna at Rondout, Dec. 10, 1868.

| | | | | | |
|---|---|---|---|---|---|
| Lump | 6 25 | .... | Egg | 7 75 | .... |
| Steamer | 6 50 | .... | Stove | 8 00 | .... |
| Grate | 7 00 | .... | Chestnut | 6 50 | .... |

65 cents additional to New York.

#### Lehigh Coal at Elizabethport, Dec. 10, 1868.

| | | | | | |
|---|---|---|---|---|---|
| Lump | 7 50 | .... | Chestnut | .... | .... |
| Steamboat and Broken | 7 50 | .... | Stove | 8 25 | .... |
| Egg | 7 75 | .... | | | |

#### Wilkesbarre Coal at Hoboken, Dec. 10, 1868.

(Corrected by Wilkesbarre Coal & Iron Co.)

| | | | | | |
|---|---|---|---|---|---|
| Lump | 6 50 | .... | Egg | 7 25 | .... |
| Steamer | 7 00 | .... | Stove | 8 25 | .... |
| Broken | 7 00 | .... | Chestnut | 7 00 | .... |

#### At Baltimore, Dec. 10, 1868.

| | | | | | |
|---|---|---|---|---|---|
| Wholesale prices to trade. | | | Trevorton R. A | $.... | .... |
| Wilkesbarre by cargo or car load | $8 25 | @8 50 | By retail, per ton of 2,240 lbs., delivered | 10 00 | 10 50 |
| Pittston and Plymouth | .... | 8 25 | Georges C'k & Cumberland f. o. b. at Locust Point for shipping | .... | 5 00 |
| Shamokin R., or W. Ash | 8 50 | 8 50 | | | |
| Lykens Valley, R. A | 8 50 | 8 75 | | | |

#### At Havre de Grace, Md.

| | | | | | |
|---|---|---|---|---|---|
| Cargo prices for shipment *south* of Patapsco River, (drawback allowed of 10 per centum.) | | | Shamokin R. or W. Ash | $.... | @8 50 |
| | | | Lykens Valley R. A | .... | 8 50 |
| | | | Trevorton R. A | .... | .... |
| Wilkesbarre and Pittston | | | | | |
| W. Ash | $.... | @8 00 | | | |

#### At Georgetown, D. C. and Alexandria, Va.

George's Creek and Cumberland f. o. b. .... @4 75

#### Prices of Gas Coals.

November 21, 1868.

| PROVINCIAL. Duty, $1 25 | Coarse. Gold. | Slack. Gold. | AMERICAN. | Coarse. Currency. | Slack. Currency. |
|---|---|---|---|---|---|
| Block House | $1 75 | @$ 75 | Westmoreland Co | $8 50 | $8 00 |
| Gowrie | 1 75 | 75 | Despard Coal Co | 8 50 | 8 00 |
| Lingan | 1 75 | 75 | Penn | 8 50 | 8 00 |
| Sydney | 2 18½ | 71½ | Newburgh Orrel Gas | 8 50 | 8 00 |
| Pictou | 2 18½ | 1 18½ | Delivered in New York. | | |
| Little Glace Bay | 1 75 | 1 00 | West Fairmont Gas Coal | .... | 7 50 |
| Caledonia | 1 60 | 75 | Run of Mine | .... | 7 00 |

#### Prices of Foreign Coals.

Duty, $1 25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

| | | | |
|---|---|---|---|
| Liverpool Gas Caking | $ 9 50 | Liverpool House Canne | 18 00 19 00 |
| " " Cannel | 14 00 | " " Orrel | 16 00 18 00 |

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD.

| | | | |
|---|---|---|---|
| Liverp'l House Orrel, sc'd | $20@23 | Liverp'l House Can'l,sc'd | $22 00 25 00 |

Per ton 2000 lb., delivered.

### Coal Freights.

(Corrected Weekly).

#### Rates of Freight from Newburgh.

| RIVER. | | EASTERN. | |
|---|---|---|---|
| On "Pittston" Coal, by boats and barges of the Pennsylvania Coal Co., per ton of 2,240 lbs. | | Stamford | $1 60 |
| | | Norwalk | 1 60 |
| Troy and West Troy | $ 55 | Bridgeport | 1 60 |
| Albany and Greenbush | 50 | New Haven | 1 60 |
| Coeymans | 45 | New London | 1 80 |
| Coxsackie and Stuyvesant | 40 | Norwich | 1 50 |
| Hudson and Catskill | 35 | Mystic | 1 80 |
| Saugerties and Barrytown | 35 | Stonington | 1 85 |
| Rhinebeck and Rondout | 30 | Sag Harbor | 1 85 |
| Po'keepsie and New Paltz Land. | 25 | Bristol | 1 95 |
| Fishkill Landing | 20 | Newport | 1 95 |
| Cold Spring and West Point | 30 | Fall River | 1 95 |
| Peekskill | 40 | Providence | 2 00 |
| Haverstraw | 45 | Dighton | 2 00 |
| Sing Sing and Nyack | 50 | Warren | 2 00 |
| Tarrytown and Piermont | 50 | Pawtucket | 2 20 |
| Yonkers | 55 | New Bedford | 2 10 |
| The coal must be discharged with all reasonable dispatch, at the expense of the consignee, who shall also pay wharfage on the boat. Boatmen will tend guy while unloading. | | Boston | 3 00 |
| | | East Cambridge | 3 10 |
| | | Salem | 3 00 |
| | | Newburyport | 3 10 |
| | | Portsmouth | 3 10 |
| | | Portland | 2 10 |

#### Freights on Coal Sea-borne from Port Richmond, Philadelphia.

Nov. 21, 1868.—From Philadelphia and Reading R. R. Wharves, Phila., to

| | | | |
|---|---|---|---|
| Bangor | 3 50 | New London | 2 70 |
| Boston | 3 50 | Dover | 3 55 |
| Providence | 3 00 | Cohasset Narrows | 3 40 |
| Lynn and discharging | 3 50 | Cambridgeport | 4 00 |
| Portland | 3 50 | Dorchester | 3 30 |
| Fall River | 3 00 | Fair Haven | 2 75 |
| New Bedford | 3 00 | Gloucester | 3 40 3 50 |
| Salem | 3 50 | Lawrence | 3 40 |
| Newport | 3 00 | Old Cambridge | 3 80 |
| East Cambridge | 3 30 | Saco | 4 10 |
| Newberryport | 3 75 | Roxbury | 3 55 |
| Portsmouth | 3 75 | Salisbury | 3 80 |
| Charleston | 2 00 | Greenport | 2 75 |
| Danversport and discharging | 3 50 | Norwich | 2 75 |
| Amesbury | 3 90 | Harlem | 1 45 |
| Beverly | 3 50 | New Rochelle | 1 30 1 40 |
| Charlestown | 3 50 | Sag Harbor | 2 75 |
| Hingham | 3 35 3 40 | Spuyten Duyvel | 1 40 |
| Marblehead | 3 60 | Williamsburg | 1 35 |
| Nantucket | 3 50 | Jersey City | 1 80 |
| Plymouth | 3 35 | New Brunswick | 1 20 |
| Provincetown | 3 50 | Alexandria | 1 40 |
| Washington | 2 25 | Fredericksburg | 2 20 |
| Calais | 3 30 | Wilmington, Del | 1 00 |
| Machiasport | 3 30 | Bath | 3 70 |
| Hoboken | 1 60 | East Greenwich | 3 .. |
| Hyannis | 3 50 | Providence | 3 .. |
| Malden | 4 | Albany | 1 95 |
| Nahant and discharge | 3 20 | New York | 1 50@1 60 |
| Weymouth and towing | 3 50 | Troy | 1 95 |

#### From Elizabethport and Port Johnson.

| | | | | | |
|---|---|---|---|---|---|
| Albany | $1 10 | @— — | New London | $1 50 | — — |
| Boston | 2 60 | — — | Newport | 1 75 | — — |
| Bridgeport | 1 35 | — — | New York | 65 | — — |
| Fall River | 2 00 | — — | Norwalk | 1 35 | — — |
| Hartford | 2 00 | — — | Norwich | 1 75 | — — |
| Hudson | 1 10 | — — | Pawtucket and towing | 1 85 | — — |
| Wareham | 2 20 | — — | Portland | 2 60 | |
| Middletown | 1 85 | — — | Portsmouth | 3 00 | |
| New Bedford | 2 00 | — — | Providence | 2 00 | — — |
| Newburyport | 3 00 | — — | Salem | 2 50 | — — |
| New Haven | 1 35 | — — | Augusta | 3 25 | — — |

#### Provincial Freights.

| TO NEW YORK. | | TO BOSTON. | |
|---|---|---|---|
| Sydney | $3 50 | Sydney | $2 75 |
| Lingan | .... | Lingan | 2 25 |
| Cow Bay | 4 50 | Cow Bay | .... |
| Port Calidonia | 4 25 | Port Calidonia | 3 00 |
| Little Glace Bay | 4 00 | Little Glace Bay | 2 75 |

#### Foreign Freights.

| | | | |
|---|---|---|---|
| New Castle and Ports on Tyne | £13@£15 keel. | | |
| Liverpool | 12s. 6d.@15s. ton. | | |
| Australian | 9 50@10 00 | Lehigh | 15 50@16 00 |
| do. Walisend | 10 00 10 50 | Liverpool | 13 00 .... |
| Bellingham Bay | 11 00 .... | Pittston, ton | 14 50 15 00 |
| California | 7 00 9 00 | Scranton | 14 00 15 00 |
| Cumberland cks | 30 00 22 00 | Scotch | 13 00 .... |
| do bulk | 28 00 .... | Vancouver Island | 12 50 .... |
| Chili | 10 00 .... | | |

#### Rates of Transportation to Tide Water.

[BY RAILROAD.]

##### To Port Richmond, Philadelphia.

Philadelphia and Reading Railroad, from Schuylkill Haven ..... $2 00

The following are the drawbacks allowed on all coal shipped East of New Brunswick and South of Cape Henry, until further notice.

| | Drawback. | Freight. | Nett. |
|---|---|---|---|
| Lump | 35 | $2 00 | $1 65 |
| Steamboat | 35 | 2 00 | 1 65 |
| Broken | .. | 2 00 | 2 00 |
| Egg | .. | 2 00 | 2 00 |
| Stove | .. | 2 25 | 2 25 |
| Chestnut | .. | 2 10 | 2 10 |

From Port Carbon, 8 cents per ton more.

##### To Elizabethport.

| | |
|---|---|
| L. V. Railroad from Mauch Chunk to Easton | $ 1 00 |
| C. R. R., N. J., Easton to Elizabethport | 1 55 |
| Shipping Expenses at Elizabethport | 25 |
| | 2 54 |
| Total | .. .. |

##### To Port Johnson.

| | |
|---|---|
| L. V. R R | $ 1 04 |
| C. R. R. of N. J | 1 63 |
| Shipping Expenses | 25 |
| Total | 2 92 |

##### To Hoboken.

| | |
|---|---|
| L. V. R.R | 1 04 |
| Morris & Essex R.R | 1 63 |
| Shipping Expenses | 25 |
| Total | $2 92 |

##### To Philadelphia.

[BY CANAL.]

| | |
|---|---|
| From Schuylkill Haven to Port Richmond | $1 00 |
| Freights and tolls by Raritan Canal | 2 25 |
| | 3 25 |
| No Drawback | .. |
| Total | 3 25 |

##### To New York.

| | |
|---|---|
| From Mauch Chunk to New Brunswick, by Lehigh, Del. Div. and Del. & Raritan Canal | $1 56 |
| Freights through | 1 55 |
| Towage | 20 |
| | 3 31 |

##### To New York via Morris Canal.

| | |
|---|---|
| Lehig Canal | $ 61 |
| Morris " | 80 |
| Towage | 70 |
| Freight | 1 80 |
| Total | 3 31 |

##### Expenses from Mauch Chunck to Jersey City for Re-shipment.

| | |
|---|---|
| Lehigh tolls (net) | $ 49 |
| Morris " | 49 |
| Freight | 1 65 |
| Re-shipping | 29 |
| Total | 3 31 |

### Foreign Metallurgy.

At Havre, Chilian copper, in bars, has made 69l. 8s. to 74l.; do. refined, in ingots, 76l.; Peruvian mineral, pure standard, 72l.; United States (Baltimore) 76l. to 80l.; do. Lake Superior, 78l. to 84l.; Mexican and Plata, in bars, 66l.; old yellow copper, 44l. to 50l.; red do., 66l. to 68l.; bronze, 66l. to 72l. At Marseilles, Toka for consumption has made 70l.; Spanish, 72l.; Chilian and refined Peruvian, 78l.; rolled red copper for sheathing, 84l.; yellow copper, 78l. At Paris, Chilian, in bars, has made 70l.; do., in ingots, 73l.; Corocoro minerals, 72l. per ton. At Rotterdam, Drontheim has made 50 to 52 fls. At Havre, Banca tin has made 88l. to 90l.; Straits, 86l. to 88l.; and Peruvian, 82l. to 84l. per ton. At Marseilles, Banca has made 106l., and English, in sheets, 102l. per ton. At Paris, Banca has made 105l.; Straits 106l.; and English, 101l. per ton. As regards lead, we may note that at Paris Spanish saumons have made 19l.; French, 19l. 4s.; English, 19l.; and German and Belgian, 19l. 4s. per ton. At Havre, Spanish has made 18l. 14s. per ton; and lead from other sources, 18l. 10s. per ton. At Paris, rough Silesian zinc has made 21l.; zinc, from other sources, 20l. 12s. to 20l. 14s. per ton; and rolled Vieille Montague zinc, 28l. per ton.—*London Mining Journal*, November 21.

### British Copper Trade Circulars.

THE COPPER TRADE.—Messrs. Pitcairn-Campbell & Co. (Liverpool, Nov. 14) write: Holders of Chili Bars having freely met buyers, considerable transactions have taken place since our last, at however a reduction of 30s. to 40s. per ton. The market closes firmly at our quotations, 67l. 10s. to 68l. for bars; 72l. to 73l. for ingots; 14s. for ore and regulus; and 34s. 6d. to 15s. for Barilla. Business transacted during the fortnight comprises on the spot here, 1,355 tons bars at 67l. to 68l.; 225 tons ingots, at 71l. to 72l.; 170 tons regulus, at 14s., and 6 tons Barilla, at 15s. On the spot, Swansea, 260 tons bars, at 67l. to 68l. At the Swansea Ticketing, 2,156 tons ore were sold, average produce 15¾ per cent., average price 13s. 9d. per unit. The arrivals here during the fortnight from West Coast, S. A., have been: Pacific, from Colon, 26 tons Barilla; Santon, from Lota, 225 tons bars, 225 tons ingots; Spirit of the Morning from Valparaiso, 900 tons ores, 93 tons bars; Glencoyne, from Lota, 400 tons bars, 200 tons ingots; Chilian, from Colon, 40 tons Barilla; Nauphante, from Valparaiso, 170 tons regulus, 224 tons bars. At Swansea, Capricorn, from Guayacan, 298 tons ingots, 144 tons Barilla. The stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, are:

| | Ores. | Regulus. | Bars. | Ingots. | Barilla. |
|---|---|---|---|---|---|
| Liverpool | 1,125 | 650 | 6,440 | 1,275 | 439 |
| Swansea | 2,061 | 2,879 | 1,329 | 54 | 238 |
| Total | 3,186 | 3,529 | 7,769 | 1,329 | 677 |

Representing about 11,800 tons of fine copper, against 8,600 tons Nov. 15, 1867; 10,200 tons Nov. 15, 1866, and 8,700 Nov. 15, 1865.

The Board of Trade returns for the United Kingdom shows the following exports of copper for the nine months ending September, in the following years:

| | 1868. | 1867. | 1866. |
|---|---|---|---|
| Manufactured copper.....Tons | 19,793 | 19,625 | 16,425 |
| Unmanufactured ditto | 5,980 | 6,376 | 4,641 |
| Foreign ditto | 13,387 | 10,590 | 10,724 |
| Total tons | 39,160 | 36,591 | 31,810 |

Messrs. Vivian, Younger, and Bond (Nov. 20).—There has again been a fair business in West Coast produce, not again in consequence of importers giving way, but from buyers increasing their limits. In the whole, about 550 tons of bars have been taken off at 68l. for Lota, and 68l. 10s. for Urmenita spot, whilst good brands, to arrive, have commanded, first 69l., and as we close 70l. Of ingots, 200 tons Urmenita were sold at 73l., and 80 tons Lota fetched 71l. A cargo of regulus has been quitted at 14s. per unit. The principal cause of the improvement is that buyers were holding back in the expectation of heavy charters being advised for the first fortnight in October from the Chilian ports amended their offers as soon as it was known that they amounted to only 1,080 tons—360 tons of bars, and 720 tons of fine copper in ores and regulus. Importers have, consequently, raised their asking prices, they having refused 69l. for Lota bars; indeed, there are very few parcels of bars to be had, and the market weare a firm appearance.

### SAN FRANCISCO STOCK MARKET.

A telegram from San Francisco, dated Dec. 9, quotes:

| STOCKS. | Per Sh. | | SHARES. | Per Sh. | |
|---|---|---|---|---|---|
| Gould & Curry | 105@ | .. | Belcher | .... | 190 |
| Savage | 77 | .. | Imperial | 116 | .. |
| Chollar Potosi | .. | 162 | Alpha | 41 | .. |
| Hale & Norcross | 83 | 81 | Amador | .. | .. |
| Crown Point | 50 | 51 | Kentuck | .. | 270 |
| Yellow Jacket | 13.60 | 13,65 | Ophir | .. | .. |

AMERICAN

# Journal of Mining.

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T. P. PEMBERTON is Corresponding and Traveling Editor.

W. B. HARRISON is Editor of the Mechanical Department.

☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," and to give the number of our Box at the Post Office, which is 5969, to ensure safe carriage. Communications intended for publication should be plainly written, and on one side of the paper only.

NEW YORK, SATURDAY, DECEMBER 12, 1868.

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## NOTICE TO CORRESPONDENTS.

In consequence of a new regulation recently adopted by the Postmaster of this city to facilitate the early delivery of mail matter, we have to request our correspondents, in addressing us, to give the number of our post-office box, No. 5,969, in lieu of, or in connection with our business office address.

## MINES OF THE PERSIANS AND EGYPTIANS.

In the early times, of which we spoke last week, as in all subsequent periods, conquest was one of the foes of mining. The Egyptians were twice conquered by the Ethiopians, and had several Assyrian wars, which must not only have produced such a disturbed condition of affairs as prevented the prosecution of mining, but also have drawn into the military service the classes of laborers employed in that business. The final establishment of the Persian dominion removed the disturbances from without, but the tyranny of the provincial governors produced numerous revolts, which doubtless had a disastrous effect upon mining. The Persians, however, amassed much treasure from their conquests, and obtained from the Egyptian mines, in particular, the finest silver. The strength which wealth imparted to this dynasty was painfully felt by the Greeks, in the vast armies which invaded their territory and the bribes with which their leaders were corrupted. The first period in the history of mining closes with the overthrow of the Persian empire by Alexander, and the transfer of the treasure and resources of the Orient into European hands. Meagre as are our data for this period, we are nevertheless led to a reasonably certain conclusion with regard to the tenure and authority under which mining was carried on. We hear of kings, like CRŒSUS, enriching themselves from the product of the mines; but there is no indication that these sources of wealth were open to private citizens. The immense quantities of gold and silver employed by governments, and their use in constant wars, also confirm our conjecture, that the mines of Asia and Africa were the property of the rulers, and that they were worked by slaves. This was certainly the case in Egypt, in the following period. It is probable, therefore, that the doctrine of ownership by the crown of the metals in the earth, was originally established by tyranny, and that before its establishment, mining, like agriculture, was carried on by the citizens. The story of JOSEPH, in the Bible, shows by what means the despot of Egypt was able to destroy the individual industry of agriculture, and to turn the whole kingdom into his own farm. Doubtless the process of "consolidation" in mining followed a similar course.

In the second period, there was apparently still greater activity and extent of mining operations; at least our information on the subject is more satisfactory. Gold, silver, copper and iron were obtained in Ethiopia, and iron at least in Libya. Possibly the recent discoveries of gold in Africa, which are now attracting considerable attention from the English, are but re-discoveries of the fields worked centuries before CHRIST. India and Caramania produced gold, and the latter country also silver, copper and minium. The people, however, are said by STRABO to have been very ignorant of the art of working metals. The Derbæ did not know how to melt their gold dust into lumps, and the Indians sold crude specimens of rich ore to foreigners. The Chalybeans, on the other hand, became famous as workers in iron, and derived their principal revenue from this source. In Asia Minor, the gold mines formerly owned by CRŒSUS were worked down to the times of XENOPHON; but STRABO says that in his day they were exhausted, and only traces of them remained. There were iron mines and skilled workmen in Palestine. Arabia Felix is celebrated by many ancient writers as possessing very rich gold and silver mines, but no traces of them now remain, nor have modern travelers observed auriferous sands in any of the streams of that country. Historical testimony on the subject is, however, quite positive and unanimous, and the matter may be considered as still in doubt. It is not impossible that the ancient writers, who were not always exact in such statements, mistook the treasure obtained by the Arabians through their Indian commerce for a product of their own soil.

We may well believe that this wide-spread development of mining, accompanied as it was with a diffusion of government, brought about some change in the mining law. The loosely-strung empire of ALEXANDER fell to pieces after his death, and no doubt the mines became the property of governors, generals, nobles and wealthy citizens. We have, however, in Egypt a type of the general systems which obtained, on a greater or smaller scale, throughout the petty despotisms which divided the world. DIODORUS gives us a picture of Egyptian mining, partly taken from the earlier work of AGATHARCHIDES. According to this account, the mines of Egypt were the property of its kings, who obtained immense sums from them.

Those were in one sense the palmy days of mining; for the king got his mining ground gratis, worked only the richest deposits, captured or reduced to slavery the necessary laborers, and levied contributions on his kingdom for the necessary food and other mining supplies. Rich mines worked at no expense, naturally paid handsome dividends. Machines were not employed to any extent, since human power was cheaper. The Egyptian monuments which remain to us represent the most stupendous works of engineering, as accomplished by the labor of countless multitudes of men. The labor of the mines was performed by prisoners of war, convicts and purchased slaves. As the Egyptians were not a warlike people and seldom returned from battle victorious, it is not likely that their prisoners were numerous. Neither could the convicts have supplied their extensive mines. It is probable that the greater portion of their miners were purchased slaves. We are, in fact, informed that the workmen in the Egyptian mines spoke different languages. To prevent conspiracies and escapes, the different gangs were placed under overseers who were not their countrymen, and all hope of flight was finally extinguished by fetters, by constant confinement in contracted caverns, and by the nature of the region itself, which offered no opportunity for successful escape. The lot of these unhappy creatures in the mines and furnaces was indeed a hard one. They were forced to labor day and night, without rest or hope, and under the most dreadful hardships and cruelties. They were entirely naked, and neither age nor sex, sickness nor wounds, excused them from the severity of discipline. The stronger ones hewed the rock in the mines, the half-grown youths carried the ore to the surface, persons over thirty years (so soon was their vigor destroyed) were set at the easier task of crushing it in mortars, and the women and old men ground it fine in hand-mills. The historian adds, with laconic pathos, that they continued to labor until they dropped dead beneath their burdens.

## THE MONT CENIS TUNNEL.

This great work of modern engineering has been the theme of many essays, reports, letters, and leading articles; and, even to-day, it is the favorite refuge of newspaper correspondents (and possibly editors also, for that matter—*peccavimus!*) who find themselves a-strand, with no tide of thought coming in to float them. Perhaps it was some such dearth of ideas which lately led the Paris correspondent of the London *Times* to make a long letter out of the fact that this tunnel, which a few days before the first day of October had progressed *so* many meters, had on that day attained *so* many meters; and, in a desperate attempt at originality on so trite a theme, to add that this was a specious statement, and that it was apt to mislead. For, argued he, the tunnel consists of two inclines, meeting in the center of the mountain at their highest point. It will be a difficult and unpleasant business to go past this highest point from either end. Consequently the work on both sides should be continued till the parties meet at that point; and therefore those who get there first "must cross their hands and wait." Now, the working parties from the Italian side have advanced 3.25 miles (5,211 meters) and those on the French side 2.24 miles (3,631 meters). The space which remains, out of the whole 7.6 miles of the tunnel, is 2.11 miles, and this must be divided unequally, giving 1.55 miles to the French and 0.56 to the Italian end. Hence, when the parties from the south get their work done, the parties from the north will have yet a mile before them. The *Times* writer mentions, in conclusion, the expectation that the tunnel will be opened in 1871, and remarks, "*Qui vivra verra;* but it would surprise a great many people if the tunnel is open for traffic even by the last day of that year."

*Ton d' apomeibonos* speaks ZERAH COLBURN of London *Engineering*, one of the ablest and altogether the most pugnacious journal in existence. Mr. COLBURN, not satisfied with the weekly thirty-two page opportunity which his own paper offers him to reduce unfortunate sciolists to impalpable powder, replies in the columns of the *Times* to the suggestions of its correspondent, asserting that there is no serious difficulty to be apprehended in passing the interior summit from the Italian side, and pitching down hill with the tunnel at the rate of 1 in 45 for half a mile, to meet the northern party coming up; that there is no difficulty in keeping the true line, and that all the water which may reasonably be expected can easily be removed with pumps. The rejoinder of the correspondent, reiterating and defending his opinion, and the surrejoinder of Z. C., declaring that his opponent is not far from a first-class idiot, we cannot quote at length. At the risk of being caught between the upper and the nether mill-stone, we mildly venture our opinion, that the difficulties mentioned do exist and may be serious; that it will on the whole be better for the work from both ends to be prosecuted upward, and not on a down grade; but that all this has apparently been taken into consideration by the engineers in charge, and that their work will be finished in 1871, even without the adoption of the measures suggested by Mr. COLBURN. As for the tunnel being "open for traffic," the Americans have shown how long a time it would take, after the excavations were completed, to effect that object. Give us the road-bed on Monday, and we will lay the seven and a half miles of track and have the trains running before Tuesday night.

Mr. COLBURN justly remarks that the greatest difficulty will be to ventilate the tunnel when it is completed, and trains are constantly passing through it. As it is a tunnel without shafts, there will be no escape for noxious gases except at the ends; and even the introduction of compressed air, in the manner in which it is now transmitted as a working power, will not prevent the inconveniences arising from the "drag" of the outward currents. We do not doubt, however, that this problem will be solved, and the greatest work of modern engineering will be in every respect a complete success. Let the fainting "Hoosac" take courage, and the unborn "Sutro" leap for joy!

## THE NEW TARIFF ON COPPER.

Our Lake Superior friends suffered at the close of the last session of Congress a most tantalizing disappointment. The bill establishing a new tariff on copper, for their protection, was brought to a vote in the House, with a certainty of success, when the speaker's hammer, falling in the very middle of the last roll-call, put an end to the session and to the further progress of the bill, for the time. Fortunately for its friends, however, all this occurred under the operation of the "previous question;" and on the first day of the present session, the House of Representatives found itself obliged, at the close of the morning hour, to attend to the copper bill at once and without debate. The result was the immediate passage of the bill by more than two-thirds of the members present, the vote standing 107 to 51.

Other localities besides Lake Superior will be benefited by this measure. We may expect it to revive the now prostrate copper mining of California, and to give new vigor to the operations going on in Tennessee, Virginia and North Carolina. If it bears hard upon the great smelting establishments which have been built at various points on the Atlantic coast, and have depended to some extent for their metallurgical and financial success upon an admixture of foreign ores, they must try to find at home the material which they have hitherto brought from abroad, or else they must stop business altogether. We hope the tariff will not be found so heavy as to force such a result. It is the danger in all tariffs laid upon raw material, that they may destroy manufactures; and we should be sorry to see what little metallurgical science has got foothold in this country, crushed out by well-meant legislation for the protection of another interest.

The following are the rates, which will take effect on the

passage of the bill by the Senate, and its approval by the President:

On all copper imported in the form of ore, 3 cents for each pound of fine copper contained therein; on all regulus of copper, and on all block or coarse copper, 4 cents for each pound of fine copper; on all old copper, fit only for re-manufacture, 4 cents per pound; on all copper in plates bars, ingots, pigs and in other forms not manufactured nor enumerated in the bill, 5 cents per pound.

There is room to fear that these rates will stop the importation of copper ores, but not that of copper; in other words, hurt our furnaces more than they will help our mines. We hope this will not be the case; and, sincerely congratulating the miners of Lake Superior on the attainment, so far, of their wishes, we shall look, when the bill becomes a law, for the good effects which they have promised us from its passage.

## NEW PUBLICATIONS.

REPORT TO THE MANHATTAN GAS LIGHT COMPANY *on the Merits of the Lime and Iron Methods of Gas-purification*, by HENRY WURTZ. New York, 1868.

This interesting report is partly the result of a rivalry between the New York and Manhattan Companies, the former of which employs limonite, or native hydrated oxide of iron, and the latter moist hydrate of lime, for the purification of gas. Professor WURTZ comes to the conclusion that "the Manhattan Company could scarcely do better than now, so far as the questions apply, of efficient purification and avoidance of production of nuisances thereby." This is not encouraging to the aristocratic and democratic noses of up-towners, which are alternately turned heavenward in scorn, and held tightly in despair, as odors, not of Araby the Blest, come flying on the wind. Perhaps they will not even be consoled by the information that the most intolerable variety of stench, which the Proressor pronounces "beyond the power of words to describe," proceeds from the works where the foul ammoniacal liquor of the gas company is manufactured into sulphate of ammonia. Neither is it exhilarating to know that the odor is "less offensive close to the ammonia works than at some distance in the direction of the wind." Not every body is so happy as to live close to those fragrant works, nor can all the sufferers move nearer, to escape the nasal torment. At the present stage of scientific knowledge, we can only recommend to the afflicted a steady course of cold in the head. It is a choice between two evils—blowing the nose, and holding it. The author of this report is, we understand, engaged in supplementary investigations, which may eventuate in the suggestion of remedies less severe.

PLYMOUTH PULPIT, the interesting and most beneficent periodical issued weekly by J. B. FORD & Co., is fast finding its way to the households of this land. The *Democrat* of this city, one of the most outspoken opponents of HENRY WARD BEECHER'S political views, recently reviewed his published sermons in a most generous and appreciative spirit; and this we take to be a fair example of the hearty admiration and respect with which all Americans regard the greatest pulpit orator, and one of the most noble and earnest Christian men of their country. Long after the animosities of partisan warfare shall have subsided, his influence as a preacher of the Gospel and a fearless champion of public and private virtue, will continue to be powerful among men. More than one secular or religious newspaper has buoyed itself up by the publication of reports of Mr. BEECHER'S sermons, sometimes with, sometimes without his permission. Those who desire to read what he really says, and to have it in a form convenient for preservation, should subscribe for *Plymouth Pulpit*, which, after the first of January, will be the only authoritative version of his sermons.

ACT OF INCORPORATION, *etc., of the* WHITE PINE MILL AND MINING COMPANY, *of Nevada*. Philadelphia, 1868. This company is located on two veins in the celebrated White Pine district—the "Charter Oak," and the "Confidence." Our opinion of the *titles* in White Pine is not favorable, on account of the great probability that the so-called veins of Treasure Hill are not veins at all, but irregular deposits in a stratum of limestone. A company that is early on the ground, however, as this one is, and especially one that possesses a mill in the district, ready for custom work, is likely to make considerable money before the troubles of litigation or exhaustion set in. Our views of White Pine, gathered from a personal examination, will be given as soon as we have an opportunity to write out our notes. Meanwhile, there is no doubt of the immense production of bullion from the mines; and MILLER'S mill, at Hamilton, which is owned by this company, is to be credited already with some "heavy runs."

APPLETON'S RAILWAY AND STEAM NAVIGATION GUIDE is so well known as scarcely to require a notice. It is an indispensable part of the outfit of the traveler. As it is issued semi-monthly, the wise man who, instead of trusting to a last year's copy, procures the very latest number, may traverse the continent as easily as if he knew by heart the time-tables of a hundred railroads. But woe to the paltry economist who, to save a quarter, travels with a Railway Guide that is out of date! Him shall dismal way-stations receive, where no connections are, till the next day; appointments of love or business shall he fail to keep, and eyesight shall he damage, reading the fine-print "anecdotes of railway progress"—bitter satire!—in the fore-front of that once useful, but now detestable volume. Hence we to the publisher thus: Prithee, print thy railway anecdotes in larger type; and to the reader: Buy always the last number of APPLETON'S *Railway and Steam Navigation Guide*, and shun the old numbers as thou wouldst cold pancakes.

THE GALAXY, under SHELDON & Co., its enterprising publishers, makes brilliant promises for the year to come; and the numerous readers of this popular monthly have no reason in the past to fear disappointment in the future. The great feature will be a new story by CHARLES READE, who is now the most eagerly perused, if we except DICKENS, of living English writers. A much smaller attraction, yet one which may have greater force with some than it has with us, is a story by Mrs. EDWARDS. Short stories many and piquant; critical papers on living American authors; popular articles on Science, Physiology, Food, Language and Literature, fill up the tempting list.

## ANSWERS TO CORRESPONDENTS.

S. B., OF COLORADO.—"A young man (chemical student only) from New York, asserted here lately that he could distinguish garnets from tin ore by the shape of the crystals only—is this true? is this test sure?" Decidedly is it true, and so perfectly certain that no chemical analysis is required when the peculiar shape of the garnet crystal is recognized, to settle the matter that no tin can possibly be found in the ore, as garnets consist of a silicate of alumina with some iron. We have no space under this head to explain more about this important subject, but will do this later under the proper heading.

L. B., OF MONTANA.—"Is a nickel mine valuable? Is this metal used to such an extent that the current value would not be much affected if large quantities were at once thrown in the market?" 1st, When you have really got a nickel mine, it is a very valuable property. 2d, Nickel is used to a very great extent, principally to alloy with copper, to make the so-called German silver, which is now mostly imported from Germany. It is quite abundant; however, we believe you may throw quite large quantities on the market before affecting its price.

L. K., OF CONN.—"What is used to color glass?" Metallic oxides; that of cobalt produces blue glass; of manganese, violet; of gold, red; protoxide of iron, green; sesquioxide of iron, brownish yellow; oxide of copper, ruby red; black oxide of copper, green; oxide of tin, milk white, etc. In our new paper, "THE MANUFACTURER AND BUILDER," this will be described in detail.

# Original Papers.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

## REPORT OF EXPLORATIONS ON THE GOLD FIELDS OF VIRGINIA AND NORTH CAROLINA.

BY DR. H. CREDNER.

II.

### DESCRIPTION OF INDIVIDUAL MINES AND WORKS.

1. *White Hall Mine*, in Spottsylvania County, 20 miles from Fredericksburg; operations are suspended at this mine. The principal workings consist in two shafts, respectively 90 and 100 feet deep; now, however, full of water. To judge from the material of the dump, the deposit is a quartz vein, carrying free gold and auriferous pyrites. The country-rock is chloritic and talcose slates. The alluvium of 20 feet thickness contains free gold in nuggets, and has in former days been successfully worked. Shortly before our visit, one nugget of $35 value, and various smaller ones of $1 to $3 value, had been washed out. In the neighborhood of the two shafts are the valuless veins of former works, pumping machinery, aqueduct, dressing works, etc., etc.

2. *Amler Mine*, Orange County, six miles from the above; two shafts caved in and filled with water, two sets of stamps and three rollers and engine, all in a rather dilapidated condition, and possessing no value; remain as signs of former operations, the extent of which, however, could neither be ascertained by examination of the material on the dump, nor by inquiries of the inhabitants of the neighborhood.

3. *Vaucluse Mine*, Orange County, three miles from the former. Two extensive pits, 80 feet deep (filled with water to within near the surface) 300 feet long and 25 feet wide, have been dug out on the outcrop of a deposit, the chief part of which is quartz, and which is encased in chloritic and talcose slates. The quartz carries free gold and auriferous iron and copper pyrites. Besides these open cuts, there are several shafts, over one of which there stands an engine of 80 horse-power, for pumping and hoisting purposes. A roasting house, with four still unused reverberatory furnaces, a crushing house with six pairs of rollers, and two engines (one of which is 180 horse-power), a stamp-mill with thirty stamps, and a whole row of shaking tables are all in a state of excellent preservation, and may be set in operation after insignificant repairs. We saw specimens of quartz which contained free gold of mossy appearance in earthy oxide of iron, and which proved, aside from the general appearance of the ore, the great value of this deposit.

4. *Melville Mine*, Orange County, two miles from Vaucluse Mine. Shaft is 72 feet deep, but filled in with debris. The stamp-mill is in a middling well preserved condition. Specimens of the ore contain a rather light-colored mispickel, which has been converted, as is usual in Virginia mines near the surface, into oxide of iron.

5. *Liberty Mine*, Fauquier County, five miles from Ellis Mill and Rappahannock River. There is a quartz vein of four to six feet in width, containing iron pyrites in bunches. Tests of the ore showed the richness of the deposits in gold. The outcrop of it was traced for about half a mile in a northeastern direction; the gangue contains large cubes of iron pyrites in a half decomposed state.

The sheds and houses around this mine contain the following apparatus, in a well preserved state: 12 stamps; one crushing apparatus, with two rolling balls of a weight of 1,000 pounds each, which move in a pan; two Chilian mills for amalgamation and grinding ore; sifting apparatus; one amalgamator working in connexion with shaping tubes; one engine of 70 horse-power.

6. On the outcrop of the same vein, and about one mile distant, is the deserted mine of the old Union Company. An old dilapidated shaft marks the spot.

7. *Wykoff's Mine*, Fauquier County, about two and a half miles northeast from the foregoing. The outcrop of the deposit is exposed, and exhibits a belt which is composed of a multitude of lenticular quartz—concretions in soft talcose slate. These quartz concretions are small, quite flat, unconnected with each other, and contain oxide of iron, auriferous iron pyrites, and but little free gold. Separate small laminæ, or flakes of pyrites, lie also directly in the slates. The mill is only five years old, and still in excellent condition. It contains six revolving iron stamps; one crushing apparatus (cost $6,000), with balls of 1,000 pounds weight, revolving in a pan; one very good engine of 60 horse-power; one amalgamator for alluvial sands; one very complicated crusher and amalgamator of new construction, and four bollers.

8. *Franklin Mine*, Fauquier County. The workings are on two veins parallel, but 300 feet distant from each other; each from six to ten feet wide, and both of the same character. The gangue is quartz, in which are disseminated particles of oxide of iron, iron and copper pyrites and free gold. The best mill ore has furnished $30 of gold per ton, but ore of much less value—as low, it is said, as $6 per ton has been worked here with profit. The principal workings are on the northern vein, and consist in (a) a shaft 106 feet deep. At 60 feet depth the vein was cut, and from that point followed downward. (b) An air shaft, 50 feet deep, for the purpose of ventilating the lower parts of the mine. (c) Another shaft, further southward, 60 feet deep, from which a cross-cut towards the southern lode was started but not finished. The outcrop of this northern lode has been taken out to a length of 500 feet, and an average depth of 25 feet.

On the southern lode a shaft of 40 feet depth has been sunk opposite shaft No. 3, of the northern vein. In sinking this shaft a posset was found which furnished $700, gold, in three days. Negroes are employed even now to stamp the quartz of the dump in iron hand-mortars. They realize per hand from one to two dollars a day. The apparatus and steam engine contained in the mill are well preserved. There is an abundance of water for milling purposes. Connected with the quartz-mill is a saw-mill, which furnishes 5,000 feet of lumber per day. The tailings of the mill, of which there are 600 to 700 tons, contain on an average, according to our tests, $6, gold, per ton.

It is but just to designate this deposit as one of the most promising among the number of those examined.

[TO BE CONTINUED.]

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

## MINERAL RESOURCES OF THE ISTHMUS OF PANAMA.—NO. I.

BY I. BLANCHARD, MINING ENGINEER.

Of the many countries which American enterprise has traversed and explored, there is perhaps none so little known in proportion to the endless crowds of travelers passing yearly over it, as the Isthmus of Panama. Many wonderful tales have been told about it at one time or another; but for some reason, probably the bad reputation of its climate, has not yet to attracted on any extended scale the attention of the mining or scientific world. It may not be untimely, therefore, to present a few considerations concerning the mineral treasures, topographical and climatic conditions of this geographically so important country.

There have been many things to prevent a thorough exploration of the Isthmus, such as difficulty of access and communications, scarcity of food, exposure to fevers, etc. Yet there are many attractions there for the naturalist, especially the botanist. But the chief features of the country are geological and mineralogical, as might be naturally expected, from the peculiar agencies to which this strip of mountain between two seas has been subjected, in the swift alternation of plutonic and neptunic forces. Nowhere do we find geological phenomena more diversified and diametrically opposed than here. Close upon neptunic deposits, and overlying them, there are vast surfaces of congealed lava, trachytic and phonolitic masses—strong indications of once active volcanic powers; and the metalliferous character of the country itself shows the results of this wild and apparently lawless succession of geological processes. Unlike the well-formed and regularly-defined veins of California and some parts of Europe, where the same mineral deposit sometimes maintains for thousands of feet along its course the same appearance and size, the veins of the Isthmus are frequently faulted, thrown out of their true dip, pinched, or otherwise made to vary in character. The difference between the gold region of the Isthmus and that of California it is interesting to notice. In the latter State, nature has done much to facilitate the exploitation of her treasures by men. The Californian gold deposits are described as belonging to three epochs. The quartz veins form the earliest; next to them follow the deep diggings, which are the first neptunic secondary deposits; and finally, out of these secondary deposits are formed the recent placers. In the Isthmus, on the other hand, mineral wealth is not so widely diffused, but more confined to its original localities. The third class of California deposits, the rich gold-bearing alluvial beds does not exist there; the other two classes are repre, sented.

Of these, the veins, as being the oldest, first claim attention. A great many laws have been suspected or invented to systematize the occurrence of auriferous veins in general. Some consider them as particularly belonging to the tropics; but this view is not in accordance with facts which show us that gold and gold veins abound in all quarters of the earth. Those who hold the theory of the essentially tropical character of gold-bearing veins ascribe them to the greater relative velocity of the earth's revolution at the equator than at the poles. Others, again, con-

nect them with the supposed great tides in the interior of the earth, simultaneous with the ebb and flow of the ocean tides, which are known to be extreme in the tropics. Others believe in a regular tenor and value of ore down to sea-level, and an increase or decrease in definite ratio, below that line. All these theories being set aside, the facts are simply, that the veins of the Isthmus combine with their great irregularity, above mentioned, an extreme narrowness, but good average richness of ore. Those of the North are generally richer than those of the Pacific slope. Their thickness varies from six to twelve inches, their dip is generally 75° to 85° S E., and their course mostly N E. and S W. The quartz is dense, compact, without selvages, abundantly intermixed with epidote, micaceous iron, copper pyrites, copper glance, peacock ore, galena, zinc blende, arsenical pyrites, etc. Gray copper and antimonial ores, I never noticed, either on the Atlantic or the Pacific side. Silver does not occur in independent ores, though it is found alloyed with the gold, which is very minutely divided in the ore, and often, even in the surface ore, not to be discovered by the usual test of washing in a horn spoon. Fire assay alone determines it. Free gold occurs near the surface; in depth the ore becomes richer, because impregnated with sulphurets, but at the same time unfit for amalgamation. It is yet to be ascertained whether this non-efficiency of quicksilver upon the sulphuret bearing quartz is caused by a chemical association. On this point, careful and suitable scientific investigations must decide.

The value of the gold quartz of the Isthmus, as given by cupellation assay, averages from $40 to $120 gold per ton; the value of sulphurets from $120 to $600. In so-called "red ores," containing a great deal of the peroxide of iron from the original sulphurets, there is of course an exceptional richness. Not everywhere does the quartz appear, as above described, in dense flinty masses. This is the case in the richest and narrowest veins; but in some others, and particularly in the wider ones, and those which break in porphyritic rocks, the whole vein seems to be intersected with threads and seams, themselves imbedded in a matrix of kaolinitic felspar, in which the very crystals of quartz, though still retaining their hexagonal form, have been disintegrated by the action of earths and alkalies. The veins of the Pacific side of the Isthmus generally distinguish themselves by their smaller contents of sulphurets. Their thickness and dip are about the same as those of the Atlantic lodes. The value of their ore seems to range from $30 to $60 gold. The gangue is mostly porphyry.

# Scientific Meetings.

## POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

NEW MOTIVE APPARATUS—MODE OF VENTILATION—STEAM INDICATOR.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held on Thursday evening, Dec. 10th. Professor TILLMAN in the chair.

Mr. B. R. PIKE presented illustrations and explained his new mode of propulsion, which consists of cylinders placed below the water-line of a vessel, with pistons operating in these cylinders and impinging against the water received at one end, which opened outside. Some discussion followed the speaker's remarks, and as much interest was manifest, it was proposed to take up the subject at the next meeting. [An illustration and description of Mr. PIKE's mode of propulsion will be found upon the first page of the present number of the AMERICAN JOURNAL OF MINING.]

Mr. HAWLEY explained a method of ventilation which is an improvement upon the old RUTTAN method. The room in which the Polytechnic Meetings are held has lately been ventilated by this method, and the manner in which it is done will illustrate the principle. Cold air is received at one of the windows and conducted to the floor. The air being warmed rises, and as the deleterious gases sink, they are taken out at an escape made in the lower part of the partition, on a line with the floor, and conducted to a flue and discharged into the air at the top of the building. For the perfect ventilation of the room, the thanks of the Association were tendered to Mr. HAWLEY.

The continuance of the discussion upon CLARKE & EDSON'S Recording Steam Indicator was then taken up and argued with some interest. Mr. CLARKE again explained the principle of the apparatus and its method of self-recording. The objection that it might be tampered with was overruled by having it locked up out of the reach of persons so disposed, and it was the opinion of the majority that it was so perfect a "tell-tale" of the performance of a boiler, that it might be considered just the thing to render engineers careful and skilful, and exclude all careless persons from the charge of a steam boiler. Much animated discussion followed, and at a late hour the meeting adjourned.

## THE NEW YORK SOCIETY OF PRACTICAL ENGINEERING.

MINING ENGINEERING.

The stated semi-monthly meeting of the Society of Practical Engineering was held on the evening of Tuesday Dec. 8th, at Room 24, Cooper Institute.

The regular paper before the society was read by Mr. W. B. HARRISON, upon the subject of "Improvements in Mining Engineering." The peculiar properties of gold and silver, their beauty and resistance to oxidization were observed, and the remark was made that it was probably these properties, together with malleability that made them valuable among the ancients, and occasioned a search that resulted in the discovery of other metals. Reference was then made to the early mode of washing for gold with the bowl and pan, and the speaker mentioned the extremely rude implements employed by the early miners of California, and remarked that the same means and the same process is now employed in Honduras, Hungary and other places. The rocker was mentioned as the first improvement upon the pan. The four methods of mining now in use were then explained—viz: Hand tools, fire explosives and machinery. After a description of some of the hand tools, the means of drilling and blasting with gunpowder was explained, and several kinds of improved fuse described. The use of gunpowder occasioned a revolution in the art of mining, and a still greater revolution when electricity was used to explode the cartridge. The speaker dwelt at considerable length upon the employment of nitro-glycerine and dynamite, and contrasted their effects with those of gunpowder. The disintegrating of rock by means of fire was then described, together with the method pursued at the mines in Rammelsburg, in the Hartz mountains of Germany. Examples of machine mining were given in the plans employed in Mont Cenis, and the Hoosac Tunnels. At the close of the paper quite a discussion ensued in which many prominent engineers took part, after which the meeting adjourned for two weeks.

## LECTURES BEFORE THE AMERICAN INSTITUTE

THE TELESCOPE.

The second of these lectures before the American Institute was given at Steinway Hall on the evening of Dec 4, by Prof. ALEXANDER, of the College of New Jersey, the subject being "The Telescope." The Professor said that the principle of the telescope was not by any means a recent invention or discovery, though it was of late years only that its powers had been developed to such a degree as to render it one of the most valuable agents of science and astronomic study. The magnifying glass, although of somewhat limited capacity, was known to the ancients of the time of Pharoah, and specimens had been found in excavating the remains of some of the Egyptian cities of that period. Explaining the principles of the refraction of light and color, he demonstrated in a lucid manner the philosophy of the magnifying qualities of the discs and lenses used in telescopes, which was that of concentrating by means of a convex lens or concave mirror a greater number of rays than would naturally converge on the eye, and producing near the focal point an image of the object. The invention of the telescope had been ascribed to Bacon, Jansen, and others, and in a primitive form, though on the general principle of that now used, it was used about the middle of the seventeenth century. As an aid to the researches of astronomy, navigation and engineering it was almost invaluable; but in the former science especially had it been the means of the most gratifying results to the world. The primary obstacle encountered in the construction of the telescope disc was in obtaining the glass of sufficient purity and most evenly adjusted density, as upon the clearness of the material depended the distinctness with which objects were discerned, while by the adjustment of its proportions the proper production of the magnifying light from the colors reflected was obtained. A disc two feet in diameter was the largest now produced and would cost not less than three thousand five hundred dollars. He concluded by referring to the fact that an American optician was now considered as one of the first in the world, and had succeeded in manufacturing glasses equal to any now made. A number of astronomical diagrams were used by the speaker during the evening to facilitate the illustration of his ideas.

# Special Notices.

### Fisk & Hatch.

THE CENTRAL PACIFIC RAILROAD, connecting San Francisco and the Pacific coast with the Atlantic lines, now nearly completed, and doing a large and remunerative business, must speedily become one of the most important and valuable lines of through traffic on the continent.

The first mortgage bonds issued thereon, having a lien superior to that of the United States, are now widely known and esteemed as among the safest, best, and most profitable corporate securities for investment. A limited quantity will be sold at 103 and accrued interest, in currency. Principal and six per cent. interest payable in gold. Government bonds received in exchange at full market rates, allowing the difference in cash. FISK & HATCH.

Bankers &c., 5 Nassau street, New York.

### New Railroad Directory.

Messrs. LINDSAY, WALTON & Co., of 58 John street, have in process of compilation a new Railroad Directory, which is designed to reach every President, Superintendent and Master Mechanic of railroads in the country. They have a few spare pages for advertisements, and as we have secured one for our new paper, the "MANUFACTURER AND BUILDER," we would advise any reader of the JOURNAL OF MINING, who deals in railroad supplies and desires to reach a large class of *consumers*, to "go and do likewise."

### Burners for Kerosene Lamps.

The American Institute is now engaged in a laudable investigation to ascertain the best and safest lamp-burner for using the products of petroleum, and also ascertain the merits of all other apparatus using the products of petroleum for illuminating purposes. Inventors and others, who may be interested, are requested to send burners or apparatus to the clerk of the American Institute. See advertisement in our advertising columns.

### A Developed Silver Mine.

As will be seen by the advertisement in another column, Mr. J. N. HAYES, 60 Broadway, basement, announces for sale a developed silver mine of great value. Parties desiring to find such a property (and there are many who daily give evidence of such a desire), would do well to call and examine the evidence in this case.

### Removal.

In consequence of the recent fire in Trinity Building, 111 Broadway, Messrs. AECHTERNACHT & SILVER, coal dealers, have removed to 119 Broadway, room No. 7.

# Patent Claims.

### Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

84,113.—ROASTING IRON ORES BY WASTE GASES.—Alexander Hamer, New York City:

I claim the combination, as set forth, with the kiln, of the open top for charging the raw ore, the open bottom for discharging the roasted ores, the flue encircling the roasting-chamber, and communicating with it by the slits, d, and a fan for forcing in the heated waste gases escaping from the blast-furnaces.

84,220.—GENERATING AND APPLYING CARBONIC OXYD FOR TREATING METALS.—Thomas Shaw, Philadelphia, Pa.:

I claim the employment of hydro-carbon fluids for the purpose of generating carbonic oxyd, for operating on heated metals, as described.

84,333—APPARATUS FOR REFINING IRON AND MAKING STEEL.—John Absterdam, New York City:

I claim the combination of the nozzle, F, and conical spout, E, either one or both of which may be made movable toward or from each other, with the suction-pipe, C, and converter, A, substantially as and for the purpose herein shown and described.

84,334.—PROCESS FOR REFINING IRON AND MAKING STEEL.—John Absterdam, New York City:

I claim the within-described process of refining iron and making steel by exposing the molten metal in the converter to the combined action of a current of air produced by suction, and of a current of air produced by force, substantially as and for the purpose set forth.

84,335.—APPARATUS FOR MAKING STEEL AND REFINING IRON.—John Absterdam, New York City:

I claim, 1st, The spark-arrester, B, in combination with the converter, A, substantially as and for the purpose set forth.

2d, The tubular pivot, b, in combination with the spark-arrester, B, steam-pipe, d, and exhauster, C, substantially as and for the purpose described.

3d, The chamber, D, having a rising and falling motion in its socket, m, in combination with an air or gas-supply pipe, one or both, and with a converter, A, substantially as and for the purpose set forth.

4th, The arrangement of nipples, s, in the chamber, D, substantially as and for the purpose described.

5th, The movable plugs, t, in combination with rising and falling chamber D, substantially as and for the purpose set forth.

6th, The pipe, r, connecting with an air-forcing apparatus, in combination with the converter, A, and exhauster, C, substantially as and for the purpose described.

84,480.—METHOD OF WORKING STEEL AND IRON.—Henry James Dickerson, Appleton, Wis.:

I claim, 1st, The working of steel and similar substances, more readily and with better results, by the assistance of the first-described compound, applied for the purpose substantially as described.

2d, The refinement of steel and similar substances, by the application of the second compound in the manner and substantially as described.

3d, The refinement and hardening of steel and similar substances, by the application of the third compound, in the manner and for the purpose and substantially as described.

4th, The accurate attainment of the desired quality in many articles at once, by the use of the receptacle and instruments above described, in the manner and substantially as set forth.

84,534—FURNACE FOR DESULPHURIZING STEEL AND OTHER WIRE.—Alanson Cary, New York city:

I claim, 1st, A furnace for desulphurizing wire and other articles, or substances, constructed with valve openings between the combustion and desulphurizing chambers, whereby the heat of the fuel has direct access to the wire or other article to be desulphurized, substantially as described.

2d, The chamber, A and B, with valve-openings between them, substantially as described.

3d, The door, H, when the same is hung and operated, substantially as described.

84,543.—ROCK-DRILLING MACHINE.—Robert Gidly, Freedom Plains, N. Y.:

I claim, 1st, The frame, C, D, E, F, of a rock-drilling machine, when such frame is made adjustable around the axis of the beam, C, and around the pivot, g, substantially as herein shown and described.

2d, The legs, B, pivoted by the pin, b, to the side of the frame, A, the outer end of said pin having an eye, a, in which the legs are adjusted vertically, as herein described for the purpose specified.

3d, The combination of the winged wheel, I, with the up-and-down as well as with the laterally movable bar, M, from which latter the pins, l and m, project as set forth.

4th, The up-and-down as well as the sideways moving bar, M, in combination with the lever, J, spring, L, rod, N, rack, o, and ratchet-wheel, p, all made and operating substantially as herein shown and described.

5th, Imparting an intermittent rotary motion to the drill shaft, N, by means of the sliding pinion, p, horizontal rack, o, and vibrating bar, m, arranged and operating as herein shown and described.

84,576.—ROCK-DRILL.—George Phillips, Cadet, Mo.:

I claim, 1st, the slide bar, H, with its diagonal slot, a, and the lever, V, with a slotted head, P, both constructed and operated substantially as shown and described, in combination with the stud, n, for the purpose of operating the valve of a drilling machine by the piston rod of the same, all as set forth.

2d, The ratchet pinion, o, in combination with the ratchet rod, M, slide plate, H, lever, V, and piston rod, F, of a drilling machine, all operating substantially as shown and described, to rotate the drill, G, of a drilling machine, in the manner set forth.

3d, The projections, h, and g, of the plates, I and N, substantially as shown and described for the purpose of forming guides for the guide-rod L', all as set forth.

4th, The plate, I, and uprights, U, U, of a drilling machine, in combination with the cylinder, A, of the same, substantially as and for the purpose shown and described.

84,644.—MODE OF PRODUCING STEEL.—James Myers, Jr., Brooklyn, N. Y., assignor to Barron's Steel Manufacturing Company:

I claim, 1st, The conversion of cast iron into steel, by the combination of the two processes of decarburation and recarburation above described, in the manner and for the purpose substantially as above stated.

2d, The conversion of articles of malleable cast iron, produced by any known process, into steel, by the application of gases produced from any solid or liquid carbonaceous substances, in the manner substantially as described.

3d, The production of cast steel, by remelting steel formed from malleable cast iron, when made in the manner above described.

RE-ISSUES.

70,447.—BLAST FURNACES.—George Asmus, assignee of F. W. Lurmann, New York City. Dated Nov. 5, 1867: re-issue 3,204:

I claim, 1st, A blast furnace with a closed breast, where the slag is discharged through an opening or openings, cooled by water, substantially as set forth.

2d, The slag-discharge piece or cinder-block, D, constructed and arranged substantially as described.

3d, The cinder-block, D, in combination with the plate, C, to which it is attached, substantially as described.

4th, The shape of the discharge-opening or openings of the cinder-block, D, being made flaring at its ends, and of diminished diameter in the middle or central part, substantially as described.

5th, The combining of the slag-discharge piece or cinder-block with a series of water-channels or pipes, substantially as and for the purposes above set forth.

6th, Combining with the metallic plate, C, a series of water-channels or pipes, substantially as and for the purpose set forth.

7th, The method of controlling the discharge of slag from blast-furnaces by regulating the temperature of the slag-discharge piece or cinder-block, substantially as described.

## COAL SHIPPERS.

**G. B. Linderman & Co.,**
**MINERS,**
SUGAR LOAF, LEHIGH COAL.
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NO 111 BROADWAY,
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Wholesale dealers in the best qualities
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Agents for the celebrated "HARTFORD ASSOCIATED COAL COMPANY'S COAL.
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Miners and Shippers of Superior
**BUCK MOUNTAIN COAL,**
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F. H. DELANO, Treasurer. G. WATLAND, Sales Agent. dec28

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☞ Reference to them is requested. May 30-1y

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WHOLESALE DEALERS IN
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**Wilksesbarre and Lehigh Coal,**
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HENRY Y. ATTRILL, Proprietor.
Mines at Fairmont, Marion Co., West Va.
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I offer this superior Coal to Gas Companies throughout the United States—*superior to any.* See analysis by Engineer Manhattan Gas Light Co. of New York, in the JOURNAL OF MINING, Vol. VI, No. 22, page 346. Orders solicited from Gas Companies, Gas Manufacturers, and Shippers of Coal by the Cargo. nov28-6m

**THE NEWBURGH ORREL COAL CO.**
Mines at Newburgh, Preston Co., W. Va.
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This Company offer their very superior Gas Coal at lowest market prices.
It yields 10,996 cubic feet of gas to the ton of 2,240 lbs., of good illuminating power, and of remarkable purity; one bushel of lime purifying 6,792 cubic feet, with a large amount of coke of good quality.
It has been for many years very extensively used by various Gas Companies in the United States, and we beg to refer to the Manhattan, Metropolitan, and New York Gas Light Companies of New York, the Brooklyn and Citizens' Gas Light Companies of Brooklyn, N. Y., the Baltimore Gas Light Company of Baltimore, Md., and Providence Gas Light Company, Providence, R. I.
The best dry coals shipped, and the promptest attention given to orders. dec5-tf-os

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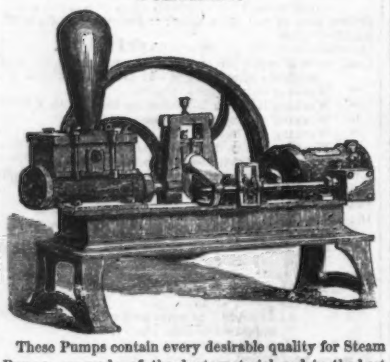

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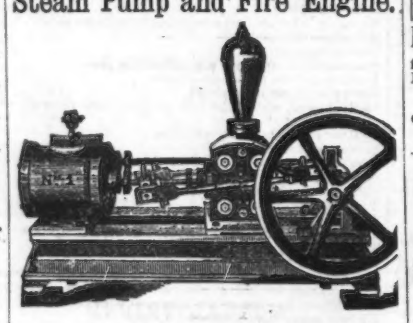

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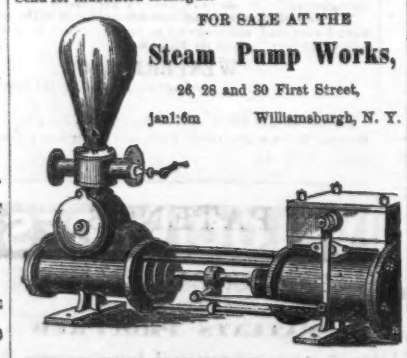

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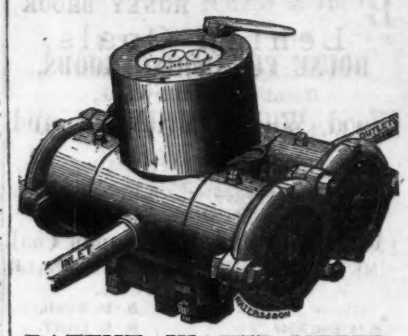

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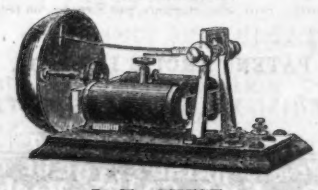

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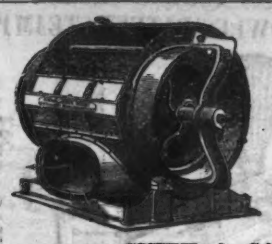

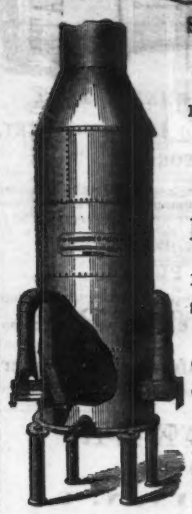

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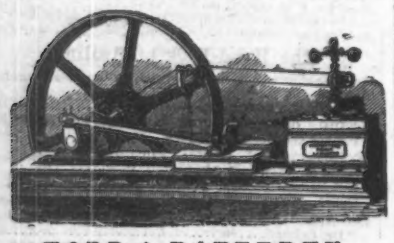

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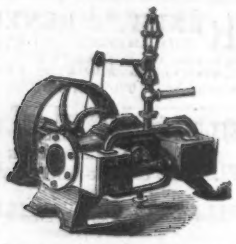

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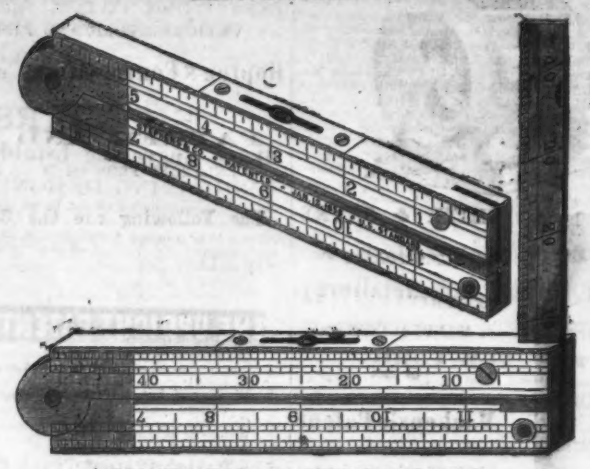

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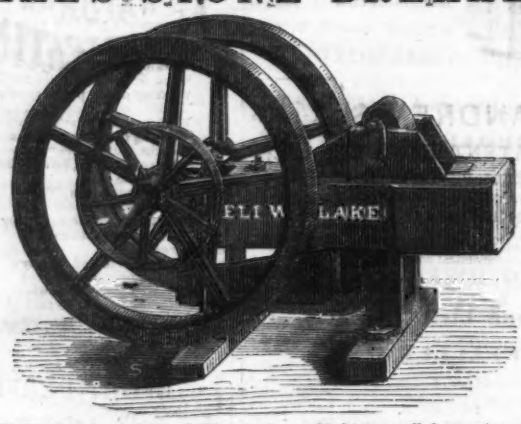


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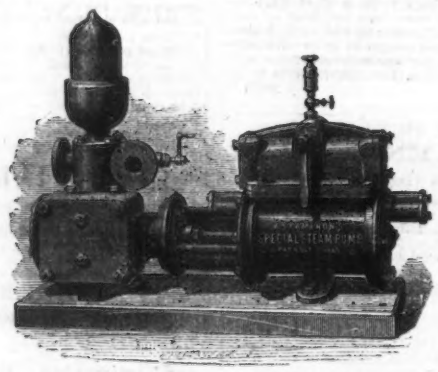

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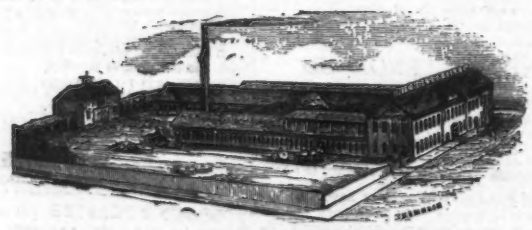

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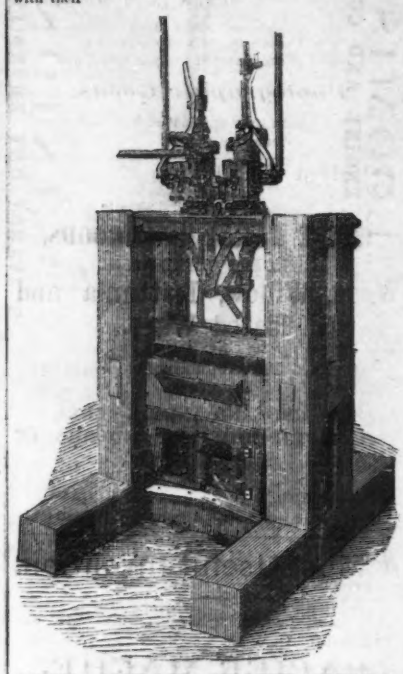

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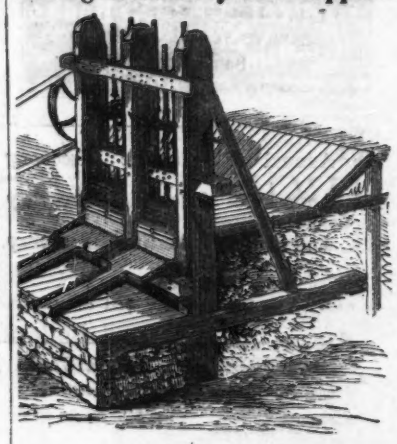

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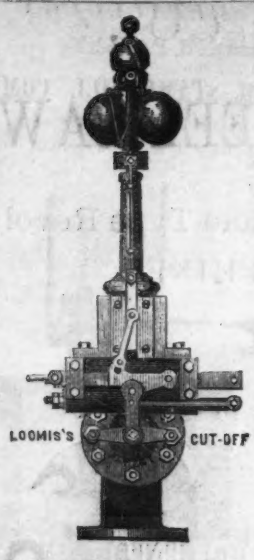


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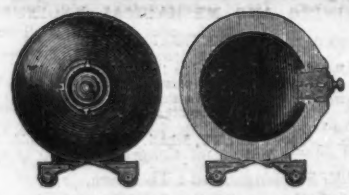

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